

# Amateur Radio



VOL 54, No 8, AUGUST 1986

JOURNAL OF THE WIRELESS  
INSTITUTE OF AUSTRALIA



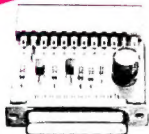
**ST JUPAT arrives in Sydney**  
**VK/ZL/OCEANIA CONTEST**  
**— 1985 results; 1986 rules**  
**Novel Way to Learn MORSE**  
**FIELD DAYS can be fun**



# The AUSTRALIAN ELECTRONICS Monthly



Don't miss August!

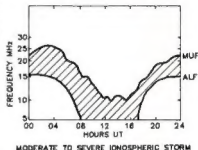
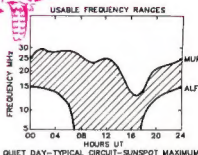


Build a 'modem coupler' and  
get your Commodore 64 or 128 'on-line'

**\$3.30 AT YOUR NEWSAGENT**

or favourite electronics retailer

## IONOSPHERIC DISTURBANCES EXPLAINED



## ANNOUNCEMENT

Shortly, we will be making major changes to *Australian Electronics Monthly*.

In the past, electronics magazines in Australia have promised 'bigger/brighter/better' things to come, but have never quite matched the performance with the promise.

But not us.

For starters, we are going to significantly expand our project content — like *double*, would you believe?

Interested? Like to find out more?

**STAY TUNED. SAME TIME, THIS MAGAZINE, NEXT MONTH**



St Jupat resting in Watson's Bay, Sydney Harbour, after a gruelling trip across the seas, see page 6.

Jenny VK5ANW, has created many firsts for YLs in South Australia during the short time she has been an amateur, see page 3.

Photograph courtesy Peter Koen



# Amateur Radio

## Regular Features

|  |    |
|--|----|
| <b>Advertisers' Index</b> .....  | 64 |
| <b>ALARA</b> .....   | 48 |
| <b>AMSAT Australia</b> .....   | 34 |
| <b>AR Showcase</b> — Hard Discs are too reliable .....   | 55 |
| <b>Awards</b> .....  |    |
| — ARANC Gague Award .....  | 49 |
| — Australian Awards Update .....   | 49 |
| — Bumpin' Award .....  | 49 |
| — DARC DX Awards .....   | 49 |
| — Diplome Du Gabon .....   | 49 |
| — FK25 Commemorative Award .....   | 49 |
| — Haiti Flag Day .....   | 49 |
| — Vanuatu ARS Award .....  | 49 |
| — VWA 75 Award Update .....  | 49 |
| — Worked EI Counties Award .....   | 50 |
| <b>Club Corner</b> .....   | 53 |
| <b>Contests</b> .....  |    |
| — Contest Disqualification Criteria .....  | 44 |
| — European DX Contest — Rules .....  | 47 |
| — QRP ARC 1986 Fall CW Contest — Rules .....   | 48 |
| — Remembrance Day Contest Scoring — by Ron Henderson VK1RH .....                                   | 22 |
| — SEA-net VSB Contest — Rules .....  | 44 |
| — VK/ZL/Oceania DX Contest — Results .....   | 42 |
| 1985 .....   |    |
| — VK/ZL/Oceania DX Contest — Rules 1986 .....  | 43 |
| — West Australian Annual 3.5 MHz CW & SSB Contests — Rules .....                                   | 46 |
| <b>Editor's Comment</b> — Hamads .....   | 3  |
| <b>Education Notes</b> .....   | 55 |
| <b>Equipment Review</b> — Kenpro KT-220E 2m Hand-Held Transceiver .....                            | 30 |
| <b>Five-Eighth Wave Hamads</b> .....   | 84 |
| <b>How's DX</b> .....  | 39 |
| <b>International News</b> — International Travel Host Exchange .....                               | 56 |
| <b>Intruder Watch</b> .....  | 56 |
| <b>Novice Notes</b> — New Time Code for VNG .....  | 26 |
| <b>Obituaries</b> — Tom Robbins, Desmond Butler, John Gardner, Cliff Gold, & Arthur Forecast ..... | 63 |
| <b>Over to you!</b> — members have their say .....   | 60 |
| <b>Pounding Brass</b> .....  | 52 |
| <b>QSP</b> .....   |    |
| 7, 9, 17, 19, 20, 21, 24, 25, 26, 36, 41, 50, 57, 62, 64 .....                                     |    |
| <b>Silent Keys</b> — VK1DL, VK3AM, VK3NA, VK4CG, VK5AQ & ZL3022 .....                              | 63 |
| <b>Solar Geographical Summary</b> .....  | 62 |
| <b>Spotlight on SWLing</b> .....   | 51 |
| <b>Thumbnail Sketches</b> .....  |    |
| — Herbert Peter Christian Larsen OA/VK4JW (SK) .....   | 28 |
| — Jennifer Warrington VK5ANW .....   | 3  |

## Technical Features

|   |    |
|---|----|
| <b>Antenna Arrays</b> — Theory & Equations by Paul McMahon VK3DIP .....       | 11 |
| <b>Antennas for Satellite Communications</b> .....                            | 20 |
| <b>Beam Rotators</b> by Fred Lubach VK4RF .....                               | 17 |
| <b>Conversion of the Pye Overland FM-738 to 6m</b> by Ian Keenan VK3AYK ..... | 25 |
| <b>Inexpensive DC Supply</b> by Syd Cummins ZL1WT .....                       | 9  |
| <b>Morse Code Tone Converter</b> by P.J. Grigg VK3APG .....                   | 31 |
| <b>Near-Field &amp; Holographic Antenna Measurements</b> .....                | 21 |
| <b>Novice Notes</b> — New Time Code for VNG .....                             | 26 |
| <b>Try This</b> — CB Antennae for 20m by Lionel Curling VK3NM/ZL3SW .....     | 36 |

## Special Features

|   |    |
|---|----|
| <b>Beacons Planning</b> by Tim Mills VK2ZTM .....                           | 52 |
| <b>Early RAAF Transmitters</b> — The Type AT-1 by E.C. Roberts VK4OI .....  | 8  |
| <b>Field Days can be fun</b> ... by John Hampel VK5SJ .....                 | 13 |
| <b>Learning the Code</b> a novel approach by Rev Suter VK6SA .....          | 18 |
| <b>Membership</b> by Gill Griffith VK3CGG .....                             | 41 |
| <b>Novice Licensing into the 21st Century</b> by G.S. Bracewell VK3XX ..... | 27 |
| <b>Remembrance Day Contest Scoring</b> by Ron Henderson VK1RH .....         | 22 |
| <b>VISJSA to Celebrate Council Centenary</b> by John Hampel VK5SJ .....     | 47 |
| <b>Voyage of St Jupat</b> by Stephen Pall VK2PS .....                       | 6  |

|  |                   |
|--|-------------------|
| <b>EDITOR</b>  | Colin Hurst VK5HT |
| <b>BILL RICE*</b>  | VK3ARF            |
| <b>TECHNICAL EDITORS</b>                                       |                   |
| PETER GAMBELL VK3TR  | VK3CP             |
| PETER GIBSON*  | VK3AZL            |
| EVAN JARMAN*   | VK3XK             |
| DOUG MCCARTHER   | VK3XK             |
| <b>GIL SONES*</b>  | VK3UM             |
|  | VK3AU1            |
| <b>CONTRIBUTING EDITORS</b>                                    |                   |
| Reindeer Edmonds   | VK3ET             |
| Marshall Bain  | VK3FN             |
| Ron Fisher*  | VK3OM             |
| Ken Hall   | VK3AKH            |
| Ray Harwood  | VK3OE             |
| Rohan Harwood  | VK3ET             |
| Ron Henderson  | VK1RH             |
| Ian Hunt   | VK3AQ             |
| <b>DRAFTING</b>  |                   |
| George Brooks  |                   |
| Lia Kline  |                   |
| <b>BUSINESS MANAGER &amp; SECRETARY</b>                        |                   |
| Ray Macey  |                   |
| <b>Members of Publications Committee</b>                       |                   |
| <b>Inquiries and material to:</b>                              |                   |
| The Editor,  |                   |
| PO Box 300,  |                   |
| Caulfield South, Vic. 3162.                                    |                   |
| <b>Material should be sent direct to PO Box 300, Caulfield</b> |                   |

South, Vic. 3162, by the 20th day of the second month preceding publication. Note: Some months are a few days earlier due to the way the days fall. Watch the space below the index for deadline dates. Phone: (03) 529 5892.

HAMADS should be sent direct to the same address, by the same date.

Acknowledgment may not be made unless specifically requested. All important items should be sent Certified Mail. The Editor reserves the right to edit all material, including Letters to the Editor, and Hamads, and reserves the right to refuse acceptance

of any material, without specifying a reason.

**TRADE PRACTICES ACT**  
It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the advice sent for themselves to ensure that, the provisions of the Act are complied with strictly.

**VICTORIAN CONSUMER AFFAIRS ACT**  
All advertisers are advised that advertisements containing only a PO Box number as the address cannot be ac-

cepted without the addition of the business address of the advertiser at either of the goods.

**Production: BETKEN PRODUCTIONS**  
5 Mansfield Avenue, Mooroolbath, Vic. 3746.

**Lower Standard Colour Separations by: QUADRICOLOR INTERNATIONAL (AUSTRALIA) PTY LTD**  
3 Lake Drive, Dingley, Vic. 3172.

**Typesetting by: BETKEN PRODUCTIONS**  
6 Mansfield Avenue, Mooroolbath, Vic. 3746.

**B-TYPESETTING**  
7 Hampshire Road, Glen Waverley, Vic. 3160.  
Tel: (03) 561 2113

**Photographic film and processing material: AGFA-GEVAERT LTD AUSTRALIA**

**Printed by: LEADER WESTERNPORT PRINTING PTY LTD**  
Oceana Street, Malvern, Vic. 3170.  
Tel: (03) 560 5111.

**Mail Processing by: AUTOMAIL PTY LTD**  
14 Stamford Road, Oakleigh East, Vic. 3166.  
Tel: (03) 566 9877

# THE \$ IS DOWN... but so are our prices!

## 150W Antenna Tuner

Match your transceiver and antenna perfectly! The FC-2017 will give you the most from your 'rig'. Antenna matching can be as easy as turning a dial: so you'll have more time for better things. Gives maximum power and performance. Includes large power/SWR meter, built-in dummy load AND covers all WARC HF bands. All this, and there's less than 0.5dB insertion loss.

Cat D-2017 **ONLY \$335**



## Fan Cooled Dummy Load



**\$149** WAS \$169  
100W continuous or 500W short term: that's the WELZ CT 530 Dummy Load. DC to 450MHz with S0239 socket termination and fan-forced air cooling. A must for the serious amateur.  
Cat D-7020

## Over half off 15W iron

The perfect iron for hobbyists and enthusiasts... at an ideal price! Miniature size and lightweight. Suits soldering jobs involving semis and delicate work. Precision balanced design enables long work periods, reduces hand strain. Energy Authority approved! Cat T-1333



**SAVE \$8 \$6.95**  
WAS \$14.95

## Economy 2m handheld

Cat D-3500

Yaesu's compact and lightweight transceiver for the amateur who doesn't need all the frills: the brilliant FT-203. Thumbwheel frequency switching makes for quick and easy channel selection — so no memories are required. But the FT-203 still packs a handy 2.5W output: more than enough for average simplex and repeater (inbuilt +/-800kHz repeater split) usage. And for mobile use the FT-203 has a no-hands VOX system when used with the optional YH-2 headset.

- 450mAh battery included
- 144-148MHz frequency range
- 5W input for 2.5W output (F3)
- Tiny size — 65 x 34 x 153mm — and only 450g including battery!
- Double conversion superhet receiver, 0.25uV (12dB) sensitivity



WAS \$459

**\$429**

## Shinwa Low Pass Filter



Cat D-7080

Stubborn case of TVI and BCI? Try the 'Big Gun'. Shinwa filter has helped thousands of customers. Handles up to 500 watts. Cut off is around 30MHz, insertion loss is less than 1dB and maximum attenuation is around 50dB! Ideal for amateurs **\$45.50** and CB'ers.

## 70cm Vertical Base Antenna

Get the most from 70cm action with our latest base station antenna — from RF Aerospace, the leading manufacturer. Boasts impressive 3.2dB gain over 1/4 wave whip. Wide band: 430-440MHz at <1.5:1 SWR. Compact and easy to install, comes with a mounting clamp.

Cat D-4704

**JUST \$59.95**

**MONEY BACK GUARANTEE**

## Maldol Duplexers



What a bargain! Maldol duplexers add versatility to communications: single transmission lines are so much more convenient!

2-6m Cat D-3555 **WAS \$62.95**  
2m - 70cm Cat D-3550 **WAS \$56.50**

**\$52.95 \$49.50**  
**SAVE \$10! SAVE \$7!**

## FT-270R Hi Performance 2 mtr Mobile

**WAS \$859**

This feature-packed compact is designed with two microprocessors for complete control. 10 memories give you the channels you want at the touch of a button. Advanced search scanning facilities let you tour through the band with ease. And dual VFO's let you handle odd repeater splits.

Cat D-3516



**Features:** • LCD display — with backlight • Unique die-cast, duct-flow heatsink • Compact — just 140x162x40mm • High/low power output 25W/5W.

**\$659** **save \$200**

**DICK SMITH ELECTRONICS**

PTY LTD

SYDNEY AREA (02) 888 2105

BANKACRA, VISACARD, MASTERCARD

P.O. Box 321, Nth Ryde, 2113

**STD Free Phone Orders**  
**008 226610**

**Australian and Proud of it!**

• NSW: Albury 21 8399 • Bankstown Square 707 4889 • Blacktown 671 7722 • Bakershill 548 7744 • Bondi Junction 367 1444 • Brookvale 83 0441 • Campbelltown 27 2100 • Chatterbox Chase 411 1955 • Chullora 642 8922 • Gore Hill 439 5311 • Gosford 25 0235 • Horsham 477 6533 • Liverpool 800 8888 • Maitland 33 7806 • Miranda 525 2722 • Newcastle 61 1890 • North Ryde 88 3855 • Parramatta 869 2188 • Penrith 32 3400 • Railway Square 211 3777 • Sydney City 267 9111 • Tamworth 68 1711 • Wokongong 28 3800 • ACT • Rydwick 80 4844 • VIC • Ballarat 31 5433 • Bendigo 43 0388 • Box Hill 800 0899 • East Brighton 592 2386 • Coburg 393 4455 • Essendon 379 7444 • Frankston 793 9144 • Geelong 43 8522 • Melbourne City 67 4634 • Richmond 428 1814 • Springvale 547 6522 • QLD • Brisbane City 329 3277 • Brisbane 291 5233 • Cairns 359 6255 • Redbank 268 5595 • Rockhampton 27 5644 • Southport 32 9803 • Toowoomba 36 4300 • Townsville 72 5722 • Underwood 341 0844 • SA • Adelaide City 232 1200 • Darwin 298 8977 • Enfield 260 8068 • Salisbury 281 1593 • WA • Cannington 451 8696 • Fremantle 325 9733 • North Perth 326 6944 • Perth City 481 3261 • TAS • Hobart 31 0800 • NT • Stuart Park 81 1927

B.243/MM



# Thumbnail Sketches

Peter Koen

27 Haskin Avenue, Kidman Park, SA. 5025

JENNIFER (Jenny)  
WARRINGTON VK5ANW

Jenny first became interested in amateur radio in 1973, when her OM, Mike attended AOCPC classes and subsequently sat for and passed his limited licence in December 1974. Twelve months later he brought home a brand-new Western 551 two-metre rig, and rashly stated that it was her Christmas present, so it was decided that perhaps she had better get her licence to go with it!

With the help of instructors, David VK5HP and Murray VK5ZQ, she finally became licensed in December 1977, with the call sign of VK5ZBI. This was the call sign that Mike had held since 1974, but in October 1977, he had obtained his full call of VK5AMW and the Department of Communications approved the change-over of the "ZBI" call sign.

Sometime in the first half of 1975, Myrna VK5YW had introduced Jenny to a magazine produced by LARA (later known as ALARA, the Australian Ladies Amateur Radio Association). Jenny became a member, and at a later date became the State Representative for VK5, a position she has held until 1983, when she became Secretary.

Around March/April 1979, Jenny was asked if she would organise the Super, at very short notice, for the next meeting of the WIA. She was still doing this "temporary fill-in" 12 months later!

She obtained her full call in April 1980, and became VK5ANW (quickly dubbed, Australia's Nicest Woman!). Having been asked if she would nominate for Council, she became the first YL to be elected to the VK5 Divisional Council (also April 1980), and served the first year as the Club's and Country Members Representative (also still Super Organiser).

In April 1981, she became the Minutes Secretary and attended the Federal Convention as Observer, with the idea that she would possibly become Federal Councillor two years hence. However, things did not go as planned and in July 1981, she became the first YL on Federal Council as Councillor to the VK5 Division. She was still Federal Councillor and Minutes Secretary from April 1982 to 1983, and from 1983 to 1984 was Federal Councillor and Vice-President. (She also

became Temporary Five-Eighth Wave Editor for one month in the early 80s and is still providing excellent notes of the Divisions news each month).

In April 1984, she became Secretary and Vice-President, and held both positions until April 1988, when she became the first YL to be elected President to the VK5 Division (and second in the 75 years of the WIA's history, the first being Susan Brown VK2BSB, former President of the VK2 Division).

Ask Jenny to comment on these events, and she says, "Well, I didn't 'set-out' to do any of these things, and in the beginning I was very reticent to become the first YL in these male dominated areas. I remember telling Ian Hunt VK5QX, the then President of the VK5 Division, who asked me to nominate for Council, that I didn't want to be 'just a mascot'. If I joined Council I wanted to 'pull my weight' but I was very aware of my limitations, particularly in technical areas, also, as I was breaking new ground, I was not sure of my reception by the OMs. I need not have worried, both at the Divisional and Federal levels they could not have been kinder or more considerate. And, apparently my presence did not inhibit them to any great extent. They didn't stop telling risqué jokes, they merely apologised beforehand and then went on with it anyway!

"I would like to think that seeing YLs such as myself, in prominent positions, will encourage other YLs to join the hobby and to take active roles themselves. We now have, or have had, YLs on the VK2, 4, 5, and 6 Divisional Councils, and Brenda Edmonds VK3KT, as Federal Education Co-ordinator. There are also many more YLs working for the good of amateur radio in less conspicuous, but no less important positions. I hope that this trend will continue. We are never likely to 'take over' nor would we want to, but we all have talents to contribute and I thank all those OMs who had enough faith in me, to let me contribute mine."

## AMATEURS HONOURED



Photograph courtesy Peter Koen, Secretary, VK5BPA

Peter Koen, Secretary of VK5BPA, and John O'Dea VK5KOR of Victor Harbour, at Government House, SA, on May 4, 1986 when both received Medals of Merit for service to Scouting from the South Australian Governor, Sir Donald Dunstan.



## Editor's Comment

HAMADS

You all know the Hamads, in even smaller type on the back page, where providing you are an Institute member you may have up to eight lines free of charge to tell us all what you have to sell or what you want to buy.

So what? you say. "What is there about Hamads that makes it worth an Editorial?" I would have thought the same until a few weeks ago, when three items involving Hamads all came up at the same Publications Committee meeting. Being a person of quick wit and long experience, your worthy producer Ken said to your unworthy Editor, bereft as usual of editorial theme, "There's your next editorial: Hamads". Or, to be more specific, he said "Why aren't people using Hamads?". Well, why aren't you?

Before you grab for pen or keyboard and dash off a fast reply, don't. Not yet, anyway. We think we know why. If you still feel impelled to make a contribution to Australia Post, read the rest and tell us if we're wrong.

One of the three items was a letter from a reader who queried the lead time of about six weeks for all AR material, including Hamads. He suggested that one week would be more sensible. Unfortunately, it just ain't so! ALL material has to go to the printer by a date (about four weeks before the magazine reaches you) which enables the printing to be costed at a concession rate. No doubt they could produce it in one week, or even less, if we paid more for the privileged Time is money. But before it goes to the printer it must be typeset. About half a million keystrokes per issue! Two people do that job in little over a week. Sure, it could be quicker. There could be more than two, but they don't work for nothing! It's your money, folks! If you want to know more, read the article in September 1985 in which the production sequence is described.

So maybe some readers with gear for sale aren't willing to wait six weeks for their ads to reach the market place. Fair enough, but where else can you advertise it for free?

Next point. We note that AR is not the only magazine in which the number of ads has dropped off over the last few years. People are simply not selling as often as they used to. Two good reasons. Due to our rather sadly diminishing dollar, new gear costs more. The obvious answer is to make do with the old for longer. And if your long suit is HF DX, there isn't a lot of it around now, right in the middle of the sunspot trough, so again why buy a new rig when it's not going to be used so much? Right?

The third item really has nothing to do with the Hamads list, but was a suggestion that all ads for sale of equipment should carry serial numbers, which could be checked against the current list of stolen gear. But somehow we can't see thieves holding on to their "hot" equipment for six weeks, rather than trying to unload it as fast as possible. Besides, they wouldn't be WIA members, would they? Still, we are now going to put the stolen list on the same page as the Hamads, for easy reference. 73 for now.

Bill Rice VK3ABP  
Editor



Jenny VK5ANW, accepts the "President's Gavel" from Immediate Past-President, Dick VK5ARZ, at the Burley Griffin Building, when Jenny was elected as President of the VK5 Division.

AN  
ELECTRONICS  
TODAY  
PUBLICATION



**ASK  
FOR  
YOUR COPY  
TODAY!**

**WOW! IT'S HERE**

# Circuits

**COOKBOOK #5**

**A BUMPER ISSUE PACKED WITH  
OVER 200 CIRCUITS AND IDEAS  
FOR THE TECHNICIAN ENGINEER  
AND HOBBY ENTHUSIAST!**

**COMPUTERS + AUDIO + RF  
ELECTRONIC MUSIC AND MUCH MORE**

OR SIMPLY SEND \$3.95 PLUS \$1.50 POST AND PACKING TO  
THE FEDERAL PUBLISHING CO, PO BOX 227, WATERLOO 2017, NSW  
Federal Publishing Company 160 Joynton Avenue Waterloo, NSW 2017 Phone: (02) 463 9995

A Call to all  
Holders of a

## NOVICE LICENCE

Now you have joined the ranks of  
amateur radio, why not extend  
your activities?

THE WIRELESS INSTITUTE OF  
AUSTRALIA  
(N.S.W. DIVISION)

conducts a Bridging Correspondence  
Course for the AOCF and LAOCF  
Examinations

Throughout the Course, your papers  
are checked and commented upon  
to lead you to a **SUCCESSFUL  
CONCLUSION.**

For further details write to:

**THE COURSE SUPERVISOR  
W.I.A.**

PO BOX 1066  
PARRAMATTA, NSW 2150

(109 Wigram Street, Parramatta)

Phone: (02) 689 2417 11 am to 2 pm M to F and 7 to 9  
pm Wed  
AR66

### W.I.A. WINDBREAKERS

— Warm and  
Machine Washable  
— Navy Blue with 8  
cm (3") WIA Badge



— Sizes 12 — 24

— INQUIRE NOW AT YOUR  
DIVISIONAL BOOKSHOP

### WECAM

Communication Sales and  
Service

*(Props. B. M. & B. P. Stores)*  
11 Malmesbury Street,  
Wendouree 3355  
Phone (053) 39 2888

**FOR LISTENING SETS AND  
ACCESSORIES**

#### MANUFACTURERS of . . .

- Wecam Folding Ground Plane  
Aerials for Home
- Gutter Grip Aerial for the Car
- Helical Aerial for Portable Use
- Cigarette Lighter Nicad Charger
- Listening Set Cradle for Home  
or Car
- Amplified Listening Set Cradle

**SERVICE AND SPARE PARTS  
AVAILABLE**

**WECAM COMMUNICATIONS**

**WECAM**

PHONE (053) 39 2888  
11 MALMESBURY ST., WENDOUREE 3355

# ANDREWS COMMUNICATIONS SYSTEMS



## COLEMAN INDUSTRIES

12 months warranty. Limited stocks of some models.  
\* GR beams feature 4 element grid reflector and 14 day  
"guaranteed superior" money back offer.

### COLEMAN

GR718 features 4 element Grid Reflector folded  
dipole driven element with a total of 18 elements  
on a 3.6m long boom ... **\$169**

- KENWOOD PS-50 P/Supply ..... **\$349**
- WELZ SP-40 140-525 MHz, Watt-meter,  
4/20/200W, SWR meter ..... **\$129**
- CORONA JUMBO HP240DX, 200W RF o/p  
3-30 MHz, adj rx amp, 4 pos o/p. Compare to HL  
200E and save! ..... **Only \$299**



### NEW COLEMAN BEAMS COMING...

- GR728, 28 el on 435 MHz band, etc
- GR210, 10 el on 144 MHz band, etc
- 603Y, 605Y, 606Y 52 MHz beams,  
**COLEMAN BEAMS NOW IN STOCK**
- 2m models, 204Y ... \$29, 205Y ... \$39, 208Y  
... \$59, 2011Y ... \$79. ● 10m 3 el Yagi ... \$99,  
etc.

### KENWOOD TS-440S ... \$1550

Includes automatic tuner, mic. Why pay \$1585?  
HF transceiver w/99 ch memory, 100W RF o/p,  
SSB-CW-AM-FM, 0.15-30 MHz rx, selectivity  
switch, notch, IF shift, NB, etc.  
Full 12 months warranty.

- ICOM IC-R71A comms receiver ..... **\$1050**
- ICOM IC-PS55 P/Supply ..... **\$399**
- IC-R7000 scanner due now ..... **\$1699**
- IC-390 UHF all-mode, 10W o/p ..... **\$899**
- IC-AT150 auto antenna tuner ..... **\$599**



### ICOM IC-731 ... \$1499

Includes mic. Why pay \$1554?  
HF transceiver w/99 ch memory, 100W RF o/p,  
SSB-CW-AM-FM, 0.1-30 MHz rx, PBT, notch, etc.  
Full 12 months warranty.

### CHIRNSIDE ANTENNAS

- CHIRNSIDE CA-33 3 el tribander ..... **\$369**
- CHIRNSIDE CA-35DX 5 el tribander on 6m long  
boom, uses 2 x 10 m elements ..... **\$449**
- CA-5 s/a 5-band vertical, 6m long ..... **\$169**
- CHIRNSIDE helicals, 80-10m types ..... **\$30 ea**
- CHIRNSIDE CA-42 15/10m Yagi ..... **\$149**
- RG-213 \$2.50/m, RG-8/U \$1.50 per metre.

Factory direct importer of high quality THP



THP HL-110V 3/10-110W 2m linear amplifier  
w/GaAsFET rx ..... **\$599**

### TOKYO HY-POWER LINEARS

- HL-82V 10-60W 2m GaAsFET rx ..... **\$319**
- HL-160V25 25-160W 2m MOSFET rx ..... **\$699**
- HL-80U 10-60W UHF GaAsFET rx ..... **\$499**
- HL-120U 10-100W UHF GaAsFET rx ..... **\$799**
- HL-2K 2Kw ip, 160-10m, 2 x 3-500Zs included,  
WARC, 30% bigger plate xfmr ..... **\$2150**

Other THP Products, POA.

90 day warranty

### KENPRO ROTATORS —

Directly imported

- KR-600RC, 600kg/cm rotation torque ..... **\$399**
- KR-2000, 2000 kg/cm rotation torque ..... **\$799**
- \*Top & bottom mast clamps inc. Control cable  
..... **\$2.00/m, 6 conductor.**



### TELEREADER CWR-880 RTTY/CW TERMINAL ..... \$579

TeleReader CWR-880 allows CW/RTTY/AMTOR  
reception. This amazing new communications  
terminal features an LCD screen with 16  
characters x 2 lines.

90 day warranty



**FT-270H \$699**  
\$597  
Yaesu FT-270H 2m FM features 10  
ch memory, rpt, 45/5W o/p, 0.2 uV  
sensitivity, PMS.



**FRG-8800 \$950**  
\$145  
Yaesu FRG-8800 comms receiver  
allows 150 kHz to 30 MHz  
reception. AM/FM/SSB/CW.



**FRG-965 \$899**  
\$390  
Yaesu FRG-965 V/UHF scanning  
receiver covers 60-905 MHz. AM/  
FM/SSB. AC/DC.



**FT-726R \$1699**  
\$240  
Yaesu FT-726R(F) SSB/FM/CW, 10W  
o/p, AC/DC transceiver.  
Inc 2m mic

Selected Kenwood items available  
at special prices.  
Full 12 months warranty on our  
Yaesu, Icom and Kenwood  
equipment, of course.  
So, why pay more?



**YAESU FT-2700RH \$950**  
\$1055  
Dual bander, 70cm/2m, 25W, FM,  
0.2 uV, 10 ch mem, PMS.

Latest Yaesu product releases in  
Japan are:

- FT-27G Dual-band handie
- FT-2303 1.2 GHz handie
- FT-67GX 1.8-440 MHz 10w
- FL7000 HF 1 KW s/a linear
- FT-250 & -690 MKII transceivers

**KURANISHI FC-965 . \$199**  
Converts 0.5-60 MHz signals up to  
60.5-120 MHz thereby allowing MW  
SW/Low VHF reception with the  
FRG-965 or similar rx.

**UNIDEN RD-9 NOT \$499. OUR  
PRICE \$399. RADAR DETECTOR**

**CALL (02) 349 5792 or 344 7880 NOW!**  
**SHOP 7, GARDEN ST, MAROUBRA JUNCTION, SYDNEY NSW**  
**THE MAIL ORDER SPECIALISTS. Write to: P.O. BOX 33, KENSINGTON, NSW 2033**

# THE VOYAGE OF ST JUPAT

Stephen Pall VK2PS  
PO Box 93, Dural, NSW 2158

Nandor Fa, a 32-year-old ship-builder and 30-years-old Jozsef (Joe) Gal, a mechanical engineer, left the north eastern shores of the Adriatic Sea on September 29, 1985 after they had been preparing for the round-the-world trip for five years. It was quite a unique task, as Hungary is a land-locked country in central Europe, and besides the Danube River which crosses the country from north to south, the only navigable waterway is an inland lake, the Lake Balaton which is about 80 km long and 16 km wide at some parts. With its 585 km<sup>2</sup>, Lake Balaton is the largest lake in central Europe.

The boat, called *Saint Jupat* was named after the Hungarian patron saint of the sailing boats and kayak enthusiasts. The hull of the boat was built by the Genz Danubius Ship Building Company, commemorating the 150th Anniversary of the Hungarian shipping industry. Nandor and Jozsef were then set the task of equipping and fitting-out the boat to their design and requirements. Out of the two would-be sailors, only Nandor had some prior sailing experience.

Once the boat was fitted out it was taken by the two adventurers on a "Shake-Down" 3200 km trip around the Adriatic Sea. Some modifications and internal re-arrangements followed this cruise. Seeing that their dream is coming to fulfillment, the two sailors started to receive some assistance from the Hungarian public and authorities, who had previously been very sceptical about the success of the venture.



The peaks of Martin Vas island (PY0) as seen by Jozsef and Nandor.

From Opatija, Yugoslavia in the north-eastern corner of the Adriatic Sea, they sailed for one month through the Mediterranean Sea, reached Gibraltar, replenished their food and fuel supplies and, after three days rest, sailed on to the Canary Islands. After a short stop they then sailed to the island of Cape Verde and the island of Tristan da Cunha, before reaching Cape Town, South Africa, on February 2, 1986.



The village, which is the only settlement on Tristan da Cunha (ZD9), when the *St Jupat* arrived during their sail-boat world trip.

In the March 1986 issue of *Amateur Radio* there was a report about two young Hungarian sportsmen who took on the mighty oceans is a 30 feet (9m) long, nine feet (2.5m) wide, four ton (4 tonnes) sailing boat. It is with some relief to them, their families and for those who followed their path, that on May 20, 1986 they sailed into Sydney Harbour in good health with a boat that shows the ravages of the sea.



Nandor, the Ship Builder, visited a colleague whilst on Tristan da Cunha.



Jozsef visited the Club Station at Cape Town and had an enjoyable chat with Don ZS1QM.

After some rest, recuperation and replenishment of necessary supplies, they sailed for Australia on March 12.

Two days later, they were struck by a severe storm and life on-board became difficult. Wet, and tired, they tried to keep the tiny boat on an even keel in mountainous seas. On March 27, the storm capped the boat, rolling it over about 80 degrees. Completely flooded, it took several days to bail out the water and dry out the boat, added to the fact that their video, and radio equipment, and the generator were damaged. (Communications with the outside world were lost for about five days).

Before departing Hungary, both sailors had undergone an examination and tests in their sailing skills before the respective Hungarian authorities. Further study and examinations followed for them to receive their amateur radio licence and official call sign HG4SEA/MM.

On board the boat is a marine VHF radio and an FTZ. When time and weather permitted regular scheds were kept on the amateur bands. With their Hungarian base station, HA4KYN, they kept

HUNGARIAN RADIO AMATEUR STATION

HG 4 SEA/MM

on Sailboat "ST JUPAT" sailing around the world

DATE:  /  /  TIME: :00

CALL:  CH:  BAND:

REMARKS:

THAT CSD IS ON:

Reg. FT 75, 50 Wt Ant. Model, LW  
Inst. Gals. Thrift. Re. Box. 314, H-1288 Budapest. 731  
Sb: Jozsef (G4A) MM □ Nandor (H4A) MM □ Chm by Juk 5 Mt. Rober



Nandor mixing the basic material for *St Jupat Bread* in the Indian Ocean between Cape Town and Sydney.

regular scheds on 3.660; 7.050; 21.260 and 14.260 MHz, time of day and propagation permitting. In the vastness of the Indian Ocean, 14.314 was their regular contact frequency. Terry ZL1MA, and in the last two weeks of their voyage, Les ZL1BIN, supplied them with regular weather reports on 14.265 MHz.

Battling huge seas, dampness, sea-water, salt, shortage of fresh food, and a very poorly functioning generator to charge their radio batteries, contact was lost with the boat for more than a week. Friends of Nandor and Jozsef in Hungary became anxious and telephone calls were made to the Hungarian community in Sydney asking for assistance. At the end of April, the New South Wales Divisional Broadcast, VK2WI appealed to amateur radio operators to keep a listening watch for them.

Eventually, faint signals were heard and reported to Mike Petery, who besides being of Hungarian origin, is a senior civilian instructor in electronics at HMAS Albatross in Sydney.

On May 10, the first regular daily contacts were established between Nandor, activating HG4SEA/MM from *St Jupat*, and Roger VK2KJ, Peter VK2QG, and Steve VK2PS.

The two sailors followed the *Roaring Forties* eastward. Nearing Western Australia they were advised to avoid the Great Australian Bight and Bass Strait. They decided to go further south to the 48th latitude and sail around Tasmania. On May 10, their position was reported to Steve VK2PS as 44 degrees and 47 minutes south and 142 degrees, 38 minutes east, with strong winds of 35-40 knots. On the same evening, a successful contact was made on 7.050 MHz.

On May 16, they reported their position as 37 degrees, 44 minutes south and 151 degrees, 46 minutes east. They were also able to receive the



happy message, which was relayed to them, that Jozsef had become a father. His wife in Hungary had given birth to a healthy 3500 grams, 45 centimetre son. The two weary sailors opened a bottle of Riesling wine, bought for this anticipated occasion in Cape Town, and drank a toast to the health of the newborn. (It was moving to listen to their happy voices over the crackle of the static on SSB).

By May 17, they were 36 degrees, five minutes Latitude, and travelling at an average speed of five knots per hour. That same night, the first contact was made with them on 3.630 MHz.

In the meantime, the Sydney Hungarian Community swung into action to prepare a welcome. Members of the Cruising Yacht Club of Australia were approached and landing rights and a berth were secured for the boat. An ad-hoc welcoming committee *The Friends of St Jupat* was formed.

The anticipated day of arrival was May 20, but ironically the boat made such good speed in the last days before arrival, that it arrived 20 hours early. Consequently, they had to anchor off Bondi Beach for the night as the welcoming schedule could not be altered.

the traditional Hungarian way — freshly baked bread, salt, wine and the sounds of Hungarian folk-music and tapping of the "Kodaly" local Hungarian dance company. Officials of the Sydney Hungarian Consulate were also present.

Welcomes were bestowed on the sailors by Julius Charody, on behalf of the yachting fraternity, Mike Petery, on behalf of the Hungarian community, Steve Palk VK2PS, on behalf of the NSW Division of the WIA, and Peter Overton VK2OG, on behalf of the Australian Navy and amateur radio operators.



Welcome on "dry" land. From left: Mike Petery, Nandor, Mike Mercz, with violin, Jozsef, and Peter VK2OG.

Photograph courtesy Royal Australian Navy

Nandor and Jozsef anticipate staying in Sydney for a number of months so they may carry out necessary repairs and maintenance to their boat before they set-sail for New Zealand.

Around Christmas time, another dangerous part of their journey will begin when they head eastwards along the 50th southern latitude towards South America, rounding Cape Horn and landing in Buenos Aires. They then plan to sail into the Caribbean, following the eastern South American coastline, then across the Atlantic Ocean towards the port of Optatia.

Nandor and Jozsef, when asked why they were undertaking such a voyage, said: "We really do not know. Ever since we read Sir Francis Chichester's book about his solo sailing around the world, we knew we had to follow his example. No Hungarians before us, ever sailed the seas in a small boat like ours, and ours is the first Hungarian sailing boat ever to visit Australia."

## NICKEL CADMIUM BATTERIES

Nickel Cadmium Battery failures are usually classed into two major categories:

**Permanent** — degraded performance caused by a failure which does not permit the battery to be reconditioned electrically to an acceptable performance level.

**Reversible** — a normal performance level is not met but the condition can be corrected by electrically processing the unit, thus restoring the original performance level.

Permanent failures generally are caused by an internal short, open, or excessive loss of electrolyte. Although it is possible under controlled conditions to electrically remove internal short circuits, field repairs for this condition are not recommended.

Reversible failures are generally caused by repetitive use patterns on the order of repetitive depth of discharge or long periods of over-charge. This is commonly referred to as memory. Memory-effect of a NiCad battery is described as a temporary loss of capacity, or an inability to deliver the proper voltage over the normal discharge cycle. This phenomenon becomes apparent when repetitive shallow charge/discharge rate patterns are maintained. The battery becomes more conditioned to deliver only slightly more voltage than its previous repetitive requirements.

It is a completely reversible failure and can be erased by cycling the battery through an extended discharge period followed by a normal charge period. Discharging can be accomplished by placing a suitable load resistor across the battery positive and negative contacts. When the voltage reaches one volt/cell, remove the load and recharge the battery at the normal rate.

A fully charged standard capacity battery should discharge to one volt/cell in 80 minutes using this method. A heavy duty battery will require about 45 percent additional time to discharge. Two additional cycles will assure removal of all memory condition.

Although over-charging of NiCad batteries longer than the required charge time will not permanently harm them, a loss of capacity similar to the memory condition can occur. Due to chemical processes within the battery, the internal resistance is increased, causing the voltage to drop prematurely depending on the length of over-charge time. See Figure 2, which shows the discharge curve at the 0 rate and room temperature. Recovery is effected in the same manner as previously described.

From TCA January 1988



St Jupat, after customs clearance, leaves Watsons Bay, in Sydney Harbour.

Photograph courtesy Royal Australian Navy

Sydney Harbour was at its best on Tuesday, May 20. Bright sunshine greeted the intrepid sailors and their boat as they motored up Sydney Harbour under the guidance of the local sailing boat *Shennondash III*, skippered by Julius Charody, a member of the CYA at Rushcutters Bay.

The wharf was crowded with media personnel, including some helicopter crews from television stations, and hundreds of members of the Hungarian community who greeted their heroes in



## HANDS ACROSS AMERICA

On May 25, about five million citizens, co-ordinated by over 3500 radio amateurs, held hands for 15 minutes to promote public awareness of the homeless and to raise funds on their behalf.

Radio amateurs were assigned to each mile of the route and provided primary communications for the event. They reported the status of the line back to their state command posts. The state command posts were in constant contact with the east and west control stations.

The west coast control station, WCRD, was located in the berthed Queen Mary ocean liner, and was headed by Tim Loewenstein WA0IVW.

The east coast control station was headed by ARRL Vice-Director Steve Mendelsohn WA2DHF.

State command posts were linked to each other and the east and west command post through a tele-conferencing network, which was out together by Lou Appel K0IUG.

From The ARRL Letter, June 6, 1986

## JARL CODE PRACTICE

The Japan Amateur Radio League (JARL), using its station JA1RL, has started to transmit regular bulletins of interest and relevant information to its members.

This station transmits CW practice on 7.030 MHz  $\pm$  5 kHz. SWL reports are solicited.

From The ARRL Letter, June 6, 1986



On board St Jupat, after arrival are from left: Jozsef, Peter VK2OG and Nandor.

Photograph courtesy Royal Australian Navy

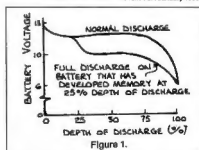


Figure 1.

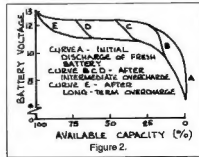


Figure 2.

# EARLY RAAF TRANSMITTERS — The Type AT1

E C Roberts VK4QI

36 Bernard Street, Rockhampton North, Qld.  
4701

**The 500 watt RAAF Type AT1 transmitters were designed and manufactured by RAAF Signals Staff at the RAAF Station, Laverton for several years from about 1929.**

Apart from valves, transformers, and meters, they were completely built by workshop personnel, including condensers, (sorry capacitors), coils, base-boards, etc.

The transmitter comprised of two polished wooden base-boards; one for the RF section and the other for the rectifier unit. A third unit was a keying and switching relay unit using two workshop manufactured brass PMG type sounder relays. One relay was the keying relay and the other switched the primary 240 volt circuit to the HT and filament transformer. This was switched on by the first touch of the key and switched off by changing the polarity of the keying voltage. Another tap on the key opened the switching relay and switched the transmitter off. (Many were the times I was zapped whilst adjusting the switching relay with one hand on each of the gap and lenion adjusting screws simultaneously).

The rectifier unit consisted of two Valve Type VU7s as a full wave rectifier. The then current RAAF nomenclature for valves was:

VT — Valve Transmitting; VR — Valve Receiving; and VU — Valve Unidirectional for rectifiers.

These VU7s were called "football" valves pertaining to their shape. They had no base and connections were made via a flying lead out of the top pinch of the valve to the anode.

Similarly, a pair of flying leads were brought out of the bottom pinch for the filament of the valve. There was definitely no need for valve connection diagrams!

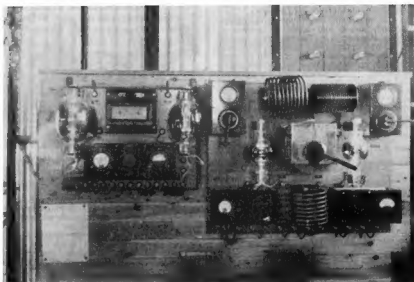
These flying leads were duly connected to screw terminals. The HT voltage from the transformer was some 3 kV and the transformer and filter condenser and choke were mounted on board of the rectifier unit. The rectifier filaments were quick heating "bright emitter" types.

Because of this quick heating factor, the whole transmitter could be switched on remotely and ready for almost instantaneous use. This was the basis of the power switching mentioned previously and it was very effective but required periodic attention to spring tension and gap adjustment of the sounder type switching relays.

The RF section was a push-pull Tuned Anode Tuned Grid (TATG or TPTG) oscillator which was inductively coupled through series tuning condensers to an Aerial and Counterpoise. The frequency range was approximately from 2.5 to 15 Mc/s, or in modern terms MHz. This coverage was achieved by a series of plug-in coils consisting of three coils per range; one each for grid (L1), anode (L2) and aerial (L3).

The oscillator valves (in fact, the only RF valves) were VT30s and sometimes VT4s. These valves were again flying-lead types with the grid lead out of the bottom pinch on the VT30 and a screw terminal on the side of the VT4 for the grid.

Although archaic by modern standards, these transmitters gave a sterling performance carrying long distance point-to-point services throughout Australia and New Guinea, up to and after the outbreak of war in 1939. They were also used on international service until superseded and also carried the bulk of HF ground-air watches until they were eventually superseded in this service also. I believe a couple of the Darwin AT1s had a new lease of life at Batchelor, Northern Territory, for some time, but that was their last dying gasp, at least in the Northern Territory.



By today's standards, one would seriously question the drift and frequency stability of a transmitter which was keyed immediately at switch-on; sometimes for periods of 10 or 15 minutes non-stop in traffic. With such a relatively unstable arrangement of a self-excited oscillator direct into the aerial from a cold start, the resultant drift must have been astonishing.

However, the state-of-the-art receivers were very forgiving as their selectivity was very little better and the receiving operators were able to adjust to these variations quite easily.

When tuning the transmitter (from a tuning circuit initially), there were two positions of grid tuning very close together in which the transmitter would oscillate; one much more actively than the other. It was common practice to check this by drawing an arc from the anode coil with a lead-pencil and selecting the broadest arc position for grid tuning. A few hardy (foolhardy?) souls did actually dispense with the lead-pencil and checked the arcs with a saliva covered index finger.

(I know of this as I was one of a number of operators who used this method! If the anodes had not been shut dead, the first time would probably have been the last, or at least there would have been only one malfunction per operator and the practice would have ceased due to a shortage of operators). I do not condone the practice for anyone, at any time. Death is so permanent.

Aerial coupling was varied by altering the angular relationship between the aerial coil L3, and the anode coil, L2.

In 1940, I was employed for sometime at the old Darwin RAAF temporary transmitting station, near the Parap public school, where several AT1s were in use at the time. During the dry season the performance of these units was superb, but with the onset of the "wet" the high line surges and spikes on the local mains current, caused by severe electrical storms, caused rectifiers to arc over with resultant open circuited filaments.

All stocks of rectifiers were used and it was necessary to substitute oscillator valves by tying the grid and anode together for use as diodes.

**The Type AT1 Transmitter. The lower coil is the L1 (grid) coil; the left uppermost coil is the L2 (anode) coil, and the right-hand coil is L3, the aerial coil.**

This entailed removing the porcelain beads on the VT30 grid leads and re-covering the grid leads with a rubber EHT insulator made by stripping the conductors out of lengths of EHT cable. This enabled the units and operators to "see the wet out" and the rectifiers were trouble free for the following dry season.

Some of the climatic problems caused by the wet season were odd, to say the least. One morning a swarm of flying ants decided to build their nest on one of the relay units and had shed their wings with a view to taking up permanent residence there. They were brushed into a four-gallon kerosene tin and taken outside. (There were over two full tins of them).

It was a very common experience to find flying bugs of all sizes and shapes plotting a path between the plates of the anode condensers of the transmitters. This was all right until the transmitter was on and keying and then — ZAPPPPI Little bugs made little zaps and were gone but B29 size moths and Praying Mantids frequently bridged two adjacent condenser plates and the noise of their demise was indescribable.

You could read the message being sent by the sound of the arc passing through the insects body. In this case, there was a mad dash and the ubiquitous lead-pencil soon flipped the offending insect away. Meanwhile, at the station signals office a repeat of the mangled (?) piece of text was necessary.

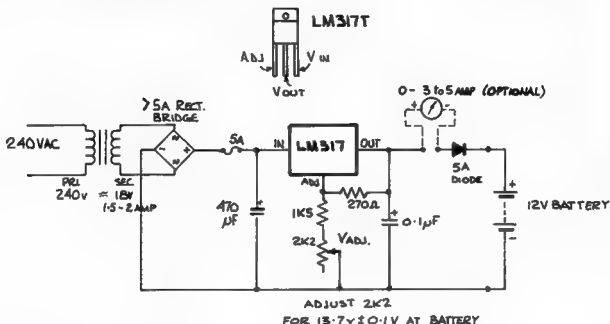
Repairs visited occasionally but, fortunately, very rarely did they cause any electrical problems.

During the dry season of 1940, new supplies of rectifiers were delivered and all looked rosy for the future. But the writing was on the wall for the old veteran AT1 as newer, more modern and sophisticated transmitters began arriving. With their installation the AT1 took a step back into history and the limbo of obsolete equipment in the RAAF store system after a long and meritorious service life.

# INEXPENSIVE DC SUPPLY

Use a common three terminal regulator to float charge a small 12 volt battery.

Syd Cummins ZL1WT  
80 Pakura Street, Te Awamutu, NZ



Suitable high capacity DC supplies for any solid-state rig of reasonable power can be very expensive. An alternative solution to the power supply problem can be found in using a common three terminal regulator to float-charge a small 12 volt battery.

The three terminal regulator based charger operates as a straight charger when the equipment that it powers is not turned on. When the equipment is operating, the charger supplies the equipment standing currents such as the receiver current drain whilst the battery supplies peak loads such as those required during transmit. The charger capacity should therefore be equal to, or greater than, the standing (normally receiver) current drain. If this is not the case, even prolonged receiver-only operation will flatten the battery.

I have developed a fully automatic charger which can charge a low cost, 12 volt motor cycle or gel battery. The preferred charging method for lead acid batteries is constant voltage charging where the current drawn by the battery decreases as it approaches full charge. The modern sealed battery is designed so that it is very difficult to damage it by over-charge (so long as the maximum voltage is not exceeded), so the charger may be left permanently connected to the battery, although continuing to attempt charging of a fully charged battery for days on end is not recommended.

The circuitry is simplicity itself. It uses an LM317 fully protected three terminal regulator

which can supply a maximum charge of 1.5 amps (with suitable heat-sink). A couple of optional extras are the ammeter and the series diode in the output. The ammeter is useful in indicating the state of charge of the battery. The diode allows the charger to be turned off whilst the battery is still connected, by stopping any discharge paths back through the charger.

ZL1GM has one of these basic units in operation and claims it works perfectly.

For contest work, a larger battery may be needed to handle the possibly heavier transmit duty cycle.

In addition to its other advantages, the battery connected across the supply provides effective over-voltage protection if the regulator short circuits. The results of a failure should only be a blown fuse.

## COMIC BOOK INTRODUCES AMATEUR RADIO

A comic book introducing amateur radio to the 8-15 age group is being published by Archie Comics. One half of the cost of publication is being paid by the amateur radio industry, the other half by the ARRL.

The book will be 32 pages, with 24-26 pages occupying the story, the remainder will be used for an amateur radio crossword puzzle, a quiz based on the facts of the story, a glossary of terms and other fun activities.

Consented from The ARRL Letter, June 5, 1986

## PRIVACY ACT

On May 14, The Electronics Communications Act of 1986, bill was approved unanimously by the US House of Representatives Subcommittee.

The Bill proposes a new definition for the interception of radio and electronic communications — "interception of the transmission of the content" — which means that mere reception of a protected communication would be a crime.

A penalty of up to one year in jail, and up to a \$10,000 fine, would be imposed for intercepting certain transmissions in the shortwave band — namely, a handful of remote broadcast pickup stations operating around 26 MHz (Ship-to-Shore radio telephone conversations may be similarly protected, although this has not yet been clarified). Also protected would be any signal "transmitted using modulation techniques whose essential parameters have been withheld from the public with the intention of preserving the privacy of such communications." That includes scrambled and encrypted transmissions, and may include radio-teletype using bit-inversion codes as well.

Scanner owners monitoring the VHF and UHF bands will find there are penalties for tuning in the remote broadcast pickup stations around 153, 161, 450 and 455 MHz, radio common carriers around 152, 158 and 454 MHz (traditional carphones), anything scrambled or encrypted, and any FM sub-carrier service.

Abridged from The ARRL Letter May 25, 1986.

# New IC-R7000



Introducing a Professional Scanning Receiver  
at an Affordable Price.

**25-1000 MHz Plus!** frequency coverage  
(no additional module required  
for coverage to approx. 2.0 GHz.)

ICOM announce a scanning receiver that offers professional performance with IC-R7000 advanced technology - 25-1000MHz coverage, multi-mode operation and a sophisticated scanning and recall system. IC-R7000 covers aircraft, marine, business, FM/AM broadcast, amateur radio, emergency services, government and television bands. **ICOM IC-R7000 has many outstanding features.**

- **99 MEMORIES:** You can store up to 99 of your favourite frequencies for instant recall. Memory channels can be called up by simply pressing the memory channel knob or direct through the keyboard.
- **KEYBOARD:** Tuning can be quickly achieved by selecting precise frequencies directly through the

IC-R7000 keyboard or by turning the main tuning knob.

- **SCANNING:** Instant access is provided to commonly used frequencies through the scanning system. The Auto-M switch enables signal frequencies to be memorized while the IC-R7000 is in the scanning mode. Frequencies that were in use can be recalled at the operators convenience. An optional voice synthesizer automatically announces the scanned signal frequency to ease problems with logging.
- **MULTI MODE:** Push button selection enables FM wide/FM narrow/AM/SSB upper and lower modes to be received.
- **TUNING SPEEDS:** 0.1, 1.0, 5, 10, 12.5 and 25 kHz through knob selection.

#### • ADVANCED TECHNOLOGY

**CONSTRUCTION:** The IC-R7000 has dual colour fluorescent display with memory channel readout and dimmer switch. Dial lock, noise blanker, combined S-meter and centre meter. Optional RC-12 Infra red remote control operation. All the above professional features are produced in a convenient, compact unit of size:

|        |        |
|--------|--------|
| Height | 282 mm |
| Width  | 286 mm |
| Depth  | 276 mm |

- Specifications guaranteed from 25-1000 MHz and 1260-1300 MHz. No additional module is required for coverage to approximately 2000 MHz. No coverage is available from 1000-1025 MHz.

Please send me details on:

☐ IC-R7000 ☐ ICOM's full range of communications equipment.

Senders details:

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

POSTCODE \_\_\_\_\_

PHONE: \_\_\_\_\_

(BUSINESS) \_\_\_\_\_

(HOME) \_\_\_\_\_

POST TO: ICOM, 7 DUKE STREET, WINDSOR, VICTORIA, 3181. PH: 0031529 7582.

All stated specifications are approximate and subject to change without notice or obligation. ICOM customers should be aware of equipment not purchased at authorized ICOM Australia Agents. This equipment is not covered by our parts and labour warranty.

ICOM 9355



**ICOM**

The Frequency of Ideas.

# ANTENNA ARRAYS

## Part I — Theory and Equations

Paul McMahon VK3DIP  
47 Park Avenue, Wattle Glen, Vic. 3350

**Antennas are undoubtedly an interesting area for experimentation in amateur radio. Here we have a theoretical look at different antennas.**

Antennas have always been one of the most interesting areas for experimentation in amateur radio. Few amateurs however, use a theoretical basis for their investigations, preferring instead to use the *let's build it and see* approach. Whilst this approach is equally valid, it does take quite some time and there is no guarantee that it will produce results. In fact, since the wide dissemination of the NBS Yagi designs, most construction has been simply the scaling of these designs to new frequencies. The prevailing feeling seems to be that — all the work on antennas has been done, so it's no use doing any more, or even if there are new forms to try you require a PhD to work them out.

This series of articles is an attempt to change this outlook, and show that there is plenty of room yet for valuable contributions to be made by amateurs. To do this, a basic computer program will be developed which will be capable of running on most home computers. Further, the underlying Equations, etc on which this program is based will also be given.

The features of this program are:

- Directive Gain Figures
- Pattern Plots
- Input Impedances
- Element Currents
- Front to Back Ratio

It will provide these for any two dimensional array of dipoles, with any or all elements driven. As such, it is usable on normal Yagis; Stacked Yagis; Driven Arrays and a large number of other configurations which do not have names.

It must however always be kept in mind that the program uses a theoretical approach and as such gives theoretical answers. The real world is much more complex than the simple models that will be presented here and as such output from the program should be treated with care. Further comments on its accuracy and application will be given later.

### THE CO-ORDINATE SYSTEM

Before going into the depths of how to accomplish the above, a few basics must be established. For most of these is the co-ordinate system, ie how we can mathematically describe where our elements are in space.

The system to be used here is shown in Figure one. As can be seen there is an X, Y and Z axis giving full three-dimensional coverage. It is rare, however, that this is the axis used in calculations. Quite a deal of simplification can be made if the other axis shown are used, ie the Theta, Phi and R. This system may be new to many amateurs, but a little thought should have most happy with its use. As an example, an element is shown with its centre at  $X=1$ ,  $Y=1$ ,  $Z=1$ , this element could also be seen to be at Theta=45 degrees, Phi=45 degrees, and  $R=1$ . It is useful to have the major lobe, or direction of greatest gain at Theta=0 degrees or directly along the Z axis.

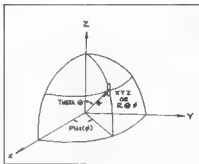


Figure 1 — Co-ordinate system for antenna analysis.

### COMPLEX NUMBERS

All amateurs should be aware of the terms resistance, reactance and impedance. They may not, however, be used to thinking of them in terms of complex numbers. For the sake of usage here, a complex number can be simply thought of as one composed of two other ordinary numbers, the real and the imaginary part. In the impedance case, impedance is really a complex number formed of the real, or resistive part and the imaginary, or reactive part. No further knowledge of complex numbers will be needed to operate the program or to basically understand the rest of the explanations which follow. However, it will be necessary to recognise complex numbers when they come up and realise that the common mathematics which applies to real numbers may not apply to complex numbers. Throughout the following complex numbers will be represented by one or the other of two possible forms.

$$3a. F(\theta, \phi) = K \cdot \cos(90^\circ \sin(\theta) \cos(\phi)) / \sqrt{1 - (\sin(\theta))^2 \cos^2(\phi)}$$

$$3b. W(\theta, \phi) = K \cdot 20 \cdot \log(F(\theta, \phi))$$

Form 1 — Real + j Imaginary, eg  $10 + j5$

or  
Form 2 — Magnitude < Angle; eg  $11.18 < 26.57$  degrees

The relationship between these forms is shown in Figure 2. Both represent the same

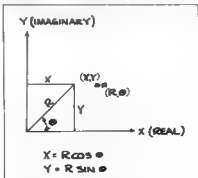


Figure 2 — Relationship between polar and rectangular complex number.

complex number but the different forms are more suitable in some circumstances than others so both will be used here at different times.

The quantities that will be expressed here as complex are, impedance, current and voltage.

### ELEMENT RADIATION PATTERNS

Most amateurs have been exposed to the concept of a pattern of a dipole antenna as shown in Figure 3. But few really know what this means or can represent this mathematically. Conventional amateur literature often only gives the pattern in two planes, the so-called E and H plane, ignoring all the area between. For our purposes, the E plane is the one that is parallel to the dipole element and the H plane is the one perpendicular to the element.

Patterns can be represented in a number of ways, the two most common are linear proportional to the radiated field strength in Volts/Metre at some arbitrary distance, or logarithmically proportional to the radiated power in Watts/Metre squared.

For a simple half-wave dipole in free space, formulas often given for E and H plane patterns are Equations 1a and 1b for the E plane and 2a and 2b for the H plane. In both cases the dipole is in our co-ordinated system situated at X,Y,Z = 0 in line with the Z axis.

$$1a. F(\theta) = K \cdot \cos(90^\circ \sin(\theta)) / \sin(\theta)$$

$$1b. W(\theta) = K \cdot 20 \cdot \log(F(\theta))$$

$$2a. F(\phi) = K$$

$$2b. W(\phi) = K \cdot 20 \cdot \log(F(\phi))$$

However, these Equations are not sufficient for our purposes here, to find the true directive gain later it is necessary to have an expression in terms of both Theta and Phi. This more complex Equation is given in Equation 3a and b.

At theta equals 90 degrees Equation 3a reduces to Equation 2a. At Phi equals zero Equation 3a reduces to Equation 1a.

It will be this pattern which will be assumed for all later calculations.

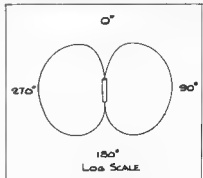


Figure 3 — Typical E plane half-wave dipole pattern.

## ARRAYS

Figure 4 shows a basic one-dimensional array composed of two elements, one and two. In this case, for simplicity, isotropic radiators will be used, in each element radiates equally well in all directions. If we imagine that we wish to determine the relative field intensity at some distant point P which is so far away that Theta 1 is approximately equal to Theta 2. Then the field in this direction can be expressed in terms of the complex element currents and phase differences, and the spacing of the elements. In general then for this situation Equation 4 gives the field expression for this array.

For more than two elements we get Equation 5, which is just the sum of a number of Equation 4s from element 1 to N.

$$4. F(\theta) = K \cdot (I_1 < A_1 + I_2 < A_2 + (2 \cdot \pi / \lambda) \cdot S \cdot \cos(\theta))$$

$$5. F(\theta) = K \cdot \sum_{n=1}^N I_n < (A_n + (2 \cdot \pi / \lambda) \cdot S_n \cdot \cos(\theta))$$

This Equation can be extended to apply to Figure 5, where a two dimensional array is used giving Equation 6.

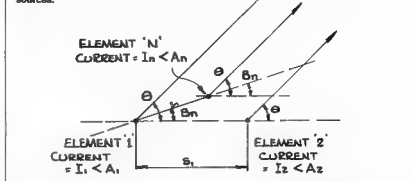
$$6. F(\theta, \phi) = K \cdot \sum_{n=1}^N I_n < (A_n + (2 \cdot \pi / \lambda) \cdot S_n \cdot \cos(\theta - B_n))$$

Once again this only gives the array pattern in the Theta plane and we require both Theta and Phi variations. It can be shown that in this case for the two dimensional array in Figure 5, the field pattern is given by Equation 7

$$7. F(\theta, \phi) = K \cdot \sum_{n=1}^N I_n < (A_n + (2 \cdot \pi / \lambda) \cdot S_n \cdot [\sin(B_n) \cdot \sin(\theta) \cdot \sin(\phi) + \cos(B_n) \cdot \cos(\theta)])$$

Further, if the array is composed of other than isotropic elements then the principle of pattern multiplication states that the total pattern can be found by multiplying the Element Pattern by the Array Pattern for isotropic elements which has the special name of the Array Factor. So the total pattern can be found by multiplying Equation 3a by Equation 7.

Figure 5 — A two-dimensional array of point sources.



etc, but all assume that we know these currents. In fact, it is not as simple as that, or else Yagi-type antennas would never work, in real life antenna elements do not act in isolation. Currents in one element set up currents in other elements via mutual effects. (For further information see Reference 2). To truly calculate patterns, this effect must be allowed for. One way of doing this is described in Reference 3.

In summary, this method uses matrix methods to solve the complex multi-element form of Equation 11.

$$11. [Z][I] = [V]$$

This then can be solved for I, but only if we know V and Z. Luckily enough, we can, in most cases, determine V and a number of methods have been proposed to calculate Z (see References 1, 2, 3, 4 and 5). The method chosen here is the so called integral equation approach and is explained best in References 1 and 5.

## CONCLUSION

In the next part we will take the above information and show how it can be implemented in terms of a basic computer program.

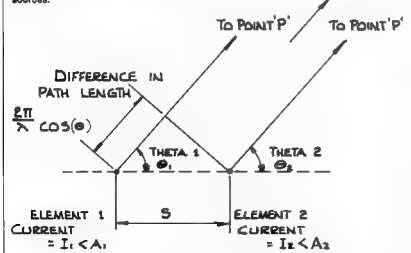
## References:

- 1 J D Kraus Antennas — McGraw Hill New York 1950
- 2 F Gehrke Vertical Phased Arrays, Ham Radio July 1983
- 3 J L Lawson Yagi Antenna Design, Ham Radio January 1980
- 4 W L Stutzman & G A Thiele Antenna Theory & Design — John Wiley & Sons New York 1981
- 5 C A Balmain Antenna Theory — Harper & Row New York 1982

## EQUATION KEY

- $E$  is the Field Strength in Volts/Metre.  
 $\theta$  is the angle Theta as shown in the Figures.  
 $K$  is a constant expression which does not effect the final outcome of this program.  
 $W$  is the Field Strength (Power Density) in Watts/Metre<sup>2</sup>.  
 $\phi$  is the angle Phi as shown in the Figures.  
 $I_n$  is the Magnitude of the current in the nth element as shown in the diagram.  
 $A_n$  is the Phase or Angle of the current in the nth element as shown in the diagram.  
 $\lambda$  is the wave-length in metres at the frequency of interest.  
 $S_n$  is the spacing in metres between the reference element and the nth element.  
 $B_n$  is the spacing in Degrees from the reference plane and the nth element, as shown in the diagram.  
 $D$  is the Directivity.  
 $U$  is similar to W but not necessarily in dB.  
 $\int [d\phi]$  is the double surface integral  
 $[Z]_n [I]_n$  are the complex matrix values of impedances, Current and Voltage respectively.

Figure 4 — A one-dimensional array of point sources.



## DIRECTIVITY AND GAIN

Directivity is defined as being the ratio of the maximum radiation intensity to the average radiation intensity (Equation 8)

$$8. D = U_{max} / U_{average}$$

It can be shown (see Reference 1) that this can also be expressed as Equation 9.

$$9. D = 4 \cdot \pi \cdot F^2(\theta, \phi) \max / \int \int F^2(\theta, \phi) \sin(\theta) d\theta d\phi$$

arrays by Equation 10, where the dBi specifies that this is gain over an isotropic radiator

$$10. \text{Gain dBi} = 10 \cdot \log(D)$$

## ELEMENT CURRENTS

So now we have enough information to determine patterns and gains of an arbitrary array, but only if we know the complex element currents. A number of programs have appeared in amateur literature to give patterns

# Field Days Can Be Fun

■ ■ ■

It all began when my son-in-law David VK5ADO, watched me delving into his Swan 240 to coax the receiver section back to life.

David was checking out up-coming contest dates and suggested the John Moyle event after all, field days are fun (he said).

I held a different view based on memories of two earlier field days in 1950 and 1954.

## BONE NOSTALGIA

The VK5 Northern Net organised a field day at Kulpura on October 28, 1950. As I was a Net Controller for that group, this would be an ideal way to meet with the voices on the other side of the microphone. An ex-disposal 108 was modified for the occasion. Three quarters of a wait into a random wire should work someone (it proved to be plenty of power to win a prize (per of 807r) for the best DX on the day).

Early arrival at the venue covered the best antenna supports in the form of two basketball goal-posts. As the other stations arrived, car mounted whips and ex-Army tank whips sprang up around us. Ken VK5AL, found a tree stump at the opposite end of the oval, to support a vertical. As 9 am approached, we awaited the WIA Sunday Morning Broadcast from Adelaide, by Reg VK5SRF. The 40 metre band was dead. Max VK5GR was complaining of similar conditions on six metres.

After an hour of deadly silence, Brian VK5CO, remarked that he had heard on 20 metres the previous night that high sun spot disturbance was expected. We awaited the WIA Sunday Morning Broadcast from Adelaide, by Reg VK5SRF. The 40 metre band was dead. Max VK5GR was complaining of similar conditions on six metres.

As a field day, it was a sun-spot washout. As a social outing, it was rated as a roaring success as so many had the opportunity to meet the regular check-ins on the Northern Net. It also provided some copy for my columns at VK5SL, *Amateur Radio* and *the A.G. Hill's Australian Radio World*, for December 1950, which was its last issue. The following month there was a change of publisher and title to *Australian Radio and Electronics*, under the ownership of Lay French VK2XC, now VK3CF of Radio Amateur Old Timers Club (RAOTC) fame.

The following year, the VK5 Division organised Sunday January 28, to stimulate interest in the WIA National Field Day. There had been little support for these events since activities resumed after WWII and this was calculated to encourage more portable operation.

The site chosen was a long stretch of beach at Taperoo. The area is now the North Haven multi-million dollar housing development and boating marina. In 1951 there wasn't a pole or tree in sight and vehicle access was pretty dicey over the sand dunes.

We all enjoyed meeting fellow amateurs including John VK5AJL, who came over especially for the day. There was some activity by intrepid operators who erected those ever-present tank whips only to see them keel over to semi-vertical or, more often horizontal in the soft sand.

Again it was a great social outing but the inevitable cricket match won't over radio.

Field day operating was off my log book for a few years when I signed VK2AFW from Broken

... and frustrating too! Reflections on preparation and operating in the 1956 John Moyle Memorial National Field Day, with data on some effective antennas for portable use. Nostalgic reminiscences of some earlier field days recall an era when portable meant anything with two handles which could be manhandled on to a Field Day site.

Hill. One of my fellow workers at the local radio station was an announcer who was interested in amateur radio and often visited the shack. He saw a reference to the National Field Day for 1954 in *Amateur Radio*. As we sometimes took the rig out to "chop picnics" for a few hours, why not make it a full operation?

This time the site chosen was one we often used in the dry creek bed of Stephens Creek, east of Broken Hill.

The rig was an ex-US Air Force TCS with generator power supplies from two 17 plate, 12 volt industrial batteries.

The TCS series was a fine rig compared to the old No 11, No 19 and F58 disposals sets which were heard in profusion after the War. Mine carried the Collins name-plate as contractor to the USAF. Many famous old names of US communications had contributed to its manufacture. The assembly was by Hazlett. Electronics came from Triplett, coils by Hammarlund, the super tuning condensers were by James Millen, the microphone insert from Turner and the power unit was mainly Dubilier.

Both receiver and transmitter used identical switched crystals (from Billey) or VFO control. 825s (12 volt 807r) plate and screen anodes of the same valves at 35 watts AM. The unit I purchased was complete with remote control unit, external speaker and aerial loading coil in new condition for 35 pounds (\$70) and weighed in at 170 pounds (77 kg). Compare that load to be packed into a car with transceivers of today. Portable station operators in those days were a dedicated few.

After a few hours into the Field Day Contest, a storm headed our way followed by rain soon after. We packed as hurriedly as possible with the heavy-weight gear and called it-a-day. When the local paper arrived next morning, it carried a front page which told how lucky we were to cease operating the previous day. Stephens Creek had been fed by a cloud-burst further north and floods had raced through our operating location about 10 minutes after we left, filling the local reservoir for the first time in two and a half years.

## PLANNING

Thinking about those earlier forays into field days did nothing to raise my enthusiasm for the 1955 John Moyle Memorial Field Day.

However, David kept the subject to the fore until I finally gave in. Yes — we would give it a go. It would provide me the opportunity to try out some antenna ideas which couldn't be fitted into the home GTM block, and back up the activity for Jubilee 150 activity in VK5.

About this time, my sister-in-law bought a property near Clare, 140 km north of Adelaide. From photographs of the farm it looked ideal. Elevation was 250 metres ASL with trees in the right places for a rhombic and long wires. I had to admit I was now warming to the idea a lot more. Arrangements were made to visit the farm about three weeks before the field day weekend. Then the first problem appeared — on that weekend there would be my niece and friends in occupation for horse-riding and the only building, a small barn-house, which would become the temporary amateur shack wasn't available.

A brother-in-law had a bus converted to a mobile home stored on blocks, somewhere on the Adelaide Hills. Now this sounded even better until a telephone call revealed that it had been moved back to the city only the previous week.

By this time, planning of desirable antennas had been finalised and a new drive to find a site was

John Hampel VK5SJ  
16 Mitchell Street, Glengowrie, SA, 5044



important. Many telephone calls produced zero results. I had the distinct feeling that some of these contacts believed the country-side was about to become a mini-Australia, trees would be damaged and, worst of all, TVI would be introduced into an otherwise quiet existence. Retribution would be mine sooner or later, when the inevitable request to "fix our hi-fi" or "look at our television mast-head amplifier" comes around.

Overhearing my lack of success on the telephone, my daughter suggested a farm where she goes horse riding. So, I phoned the owner, he has no objections, is even enthusiastic, suggests best site as he works UHF CB from there. Finally he mentions there is a new shed built since the bush fires on Ash Wednesday and it is at the highest point in the Bugle Ranges, Mount Wilson, 125 metres ASL. Would I like to see it tomorrow as he is going down? If it had not been night time I would have been ready to go, right then!

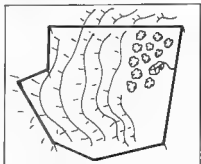
Arrival at the farm brought a pleasant surprise. The shed mentioned the previous night was much larger than expected. Although cluttered with old tractors and implements, it also sported an ideal operating table plus chairs and a folding lounge stored there — a ready made field day shack.

Outside were several gum trees devoid of foliage since the bush fires, which would be ideal for supporting our antennas. The land sloped steeply on three sides and visions of a sloping terminated V-beam came to mind.

Our host then came up with an offer to use his generator, powered by an old Ferguson tractor engine. Occasionally it saw duty to pump water from a dam down the hill and "the run will do it good."

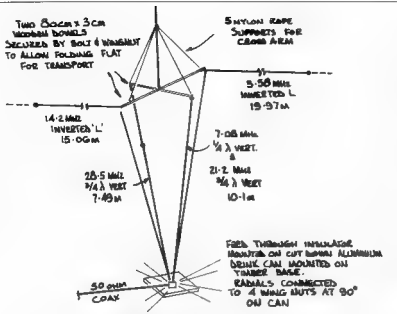
A portable generator had already been arranged. At this point, David's mind was already planning ahead. He had spotted another, smaller shed on a distant hill to the south. The owner confirmed it could also be used over the weekend. This also meant I lost my second operator — VK5ADO would operate from the second site. The owner left us to look around with a remnant to "close gates" before leaving. Also, something about a mean bull which did not cause any concern then but, I would have good reason to remember later while erecting an antenna.

David became interested in the fence around the area. Apparently it had once served as an electric fence and, as far as our inspection took in, the plastic insulators still appeared sound. Heavy insulated cable dived under gate openings, but it looked too inviting to ignore.



Irregular Shaped Loop. It was approximately 1800 metres long.

TWO 80CM x 3CM  
WOODEN BOMBS  
SECURED BY BOLT & WASHWATER  
TO ALLOW FOLDING FLAT  
FOR TRANSPORT



Multi-Band Vertical/Inverted L.  
Radial Lengths:

|            |              |
|------------|--------------|
| 3.580 MHz  | 20.42 metres |
| 7.080 MHz  | 10.35 metres |
| 14.200 MHz | 5.18 metres  |
| 21.200 MHz | 3.45 metres  |
| 28.300 MHz | 2.56 metres  |

I had brought a multi-meter to test ground conductivity. This soon revealed that the fence was a continuous loop back to a cut made as a test point opposite the shed. Earlier success with a 7 MHz loop only 70 cm above ground at the home QTH fired the imagination. This one was at least 1200 metres (later checked closer to 1800 metres) and about 150 cm high. It would be fired up on 3.5 MHz for the field day.

Driving home we assessed what was available. David would now use his trusty Swan, plus home-brew transverter for 21 and 28 MHz with a common feed coaxial cable to simple dipoles. The problem would be finding enough three-core cable to use with the generators.

## PREPARATION

Over the next three days of scrounging, we had amassed a motley collection of extension cords in varying lengths with some in dubious condition. They would all have to be checked, a vital safety exercise which took a while day. A concern was to find that two of the cables, with moulded plugs and sockets, had been manufactured with transposed active and neutral, whilst another was made as a two-core cable with no earth and no indication that perhaps it was for use with double insulated appliances. In all, after modification of the faulty cables a total of 310 metres was available.

Although the basic antenna types had been decided, the construction and erection now had to be reconsidered since I would be going it alone as a single operator station. Clearly the antennas would need to be made up in a manner allowing quick, simple rigging on-site.

The front lawn became a source of wonder for neighbours and passers-by. Old transformers and

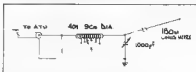
black and white television deflection coils were unwound plus discarded house wiring (kindly donated by Ted VK5PEB) were all pressed into service, measured and packed. Sets of radials were individually wound on coffee jars and marked for reference. When these were assembled at the field day it was a simple matter to unwind each radial and the jar held the wire in place. Two cartons of radials were packed so that there would be at least four for each HF band.



The main body of the multi-band vertical sloped down 45 degrees from the tree to the feed-point. The inverted L sections for 3.5 and 14 MHz extended out to the sides.

Next a multi-band wire vertical-cum-inverted-L was assembled and coiled up carefully for transport. Each antenna wire and feedline were colour-coded with insulation tapes to avoid confusion later. This proved to be a time-saver when the

antennas were going up and various feedlines brought into the operating position.



Long Wire — All Bands.  
Circuit of the Auxiliary Tuner used with the ATU for the Long Wire and Horizontal Fence Loop Antennas.

Obviously, to utilise the various antennas it would be necessary to switch between them and without confusion under contest conditions. A board to select feeders and inputs to the ATU was made up so that the status of switches could be determined at a glance. Some manual card was added and ruled up to note tuner settings.

A bow and arrow had been promised by Bob VK5ZAL. While collecting this sky-hook tool he mentioned some bits and pieces that were to be thrown out. A lucky coincidence that among the items were some porcelain feed-through insulators and a GR Laboratory Standard 1000 pF variable capacitor. Later that day, the insulators were installed on the switchboard for long wire selection. The capacitor and a Collins loading coil (from that TCS of 1954) were bread-boarded into a long wire tuner.

## DISASTER STRIKES

It was now Wednesday. Every item had by now been checked at least twice. All was well. At least until that night. It was nearing the end of a Jubilee 150 Net on 21 MHz when the drive on my TS-520 became erratic. The next three hours of troubleshooting produced no results and worse, the rig was nonoperative on all bands.

An early start next morning saw the rig working on the two low bands for a short while. After about 30 minutes, drive disappeared again so that by mid-morning, it was clearly a case of no rig for the field day.

(The following week the fault was traced to overheating during long operation sessions. The trouble has not re-appeared since providing better air flow around the transceiver. The heating had caused the drive-stage coil formers to expand slightly allowing the cores to move. They were locked in position and resigned after threading a strand of hair around each core — an old trick used by servicemen who would use a cotton thread to lock sloppy IFs on old broadcast sets.)

Some phoning produced a happier result after the third call. Ken VK5GW, had a spare IC-751 which he kindly delivered to my QTH a couple of hours later. Our field day hopes had been reinstated.

How all the gear fitted into one car was an exercise in packing. The boot was persuaded to close and the partly assembled 21 MHz beam tubes stuck out the window. The generator and jerry cans of fuel had gone ahead with the farm owner. We reflected on this decision as we squeezed into the remaining space and headed south.

## SETTING UP

Arrival at the farm on Friday afternoon indicated a change in scenery since the first visit. Cattle had been used to padlock that day and left calling-cards all around the shed. Transferring the gear from the car was carried out with extra care. David took the car and headed down the range.

Previous arrangements were to check into the Jubilee 150 Net that night, so I concentrated on erecting a 3.5 MHz wire and connecting up the fence loop. No rainfall in the area for over three months meant the soil was dry and packed hard. After draining a near empty storage tank, plus sacrificing our drinking water supplies, an earth stake was persuaded into the ground. Quarter wave coupling radials for each band were also connected to the ATU.

These radials proved useful when the loop or long wire were used. Without them, the tuner would only bring the SWR down to 2:1 at best.



(over 3.5 on 14 MHz with the long wire). With the radials in circuit, the SWR was barely readable on all bands.

By 0915 UTC, David returned taking things at a more leisurely pace. He would wait until Saturday morning to put up dipoles — after all, I had the bow and arrow. We had overlooked this in our planning and arrangements were made for the next day.

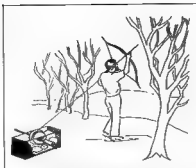
Listening on 3.5 MHz, we were impressed by the healthy sound of the band. Used to an S7 noise level most times at home, this was luxury. Noise was almost non-existent, particularly on the loop. This was a feature of the loop I had used before.

Using the inverted dipole, I called Gordon VK5KGS, and we were, as expected, S9 back in Adelaide. A change to the loop was dramatic to say the least. As the IC-751 had a variable power output control, I cut back to 10 watts using a fairly accurate power meter for the test. Other stations waiting for the J150 Net gave us reports of still over S9. The loading was reduced, processor taken out of circuit and the microphone gain wound back until finally the indicated power was 600 mW. We were still S9 in Adelaide and Port Augusta. A VK4, north of Townsville called in to report that the signal had dropped from S9 to S7 since the start of the tests.

The quiet location and antenna efficiency made working on the Net a most pleasurable evening. Stations in VK4, VK6, and ZL that I had often heard before at home were now 4-5 S-points up. All sounded well for some interesting operation in the contest the next night. The most important consideration now was an early night as I planned a brisk start on erecting antennas on Saturday morning.

A 6 am start did not impress David, but there was a lot still to be done. I left him to cook our breakfast while I pushed on. Lines to support a vertical and a two element sloper were soon in place with the aid of the bow and arrow. After some unsuccessful attempts when the fishing line snagged on tufts of dry grass, a lead for the line was fashioned with a screw-driver and cardboard carton. Rocks held the crude, but effective device in place.

The all-band was intended as a true vertical. The coaxial cable now had to reach the rig through the only access of the shed door which meant the feed point was away from the only



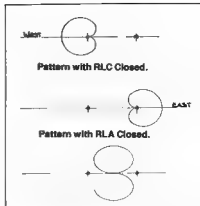
Anti-sag set-up for playing out the fishing line using a screw-driver, cardboard carton and rocks to hold it in position. If a second person is available, a 'casting reel' used by anglers could be used. This is a reel open on one side with a flared edge so that it may be held in the hand, and angled in the direction of shooting the line. Other methods of putting a light line over trees for portable antennas are a catapult (should be used with caution and plenty of practice beforehand) or, the simplest expedient of a smooth rock of size equal to the operators throwing ability! Avoid items which may (say — Murphy's Law says WILL) be caught in the twigs and foliage.

convenient tree. Text books put forward various values of feed point impedance for both top and bottom fed verticals and slopers. Noise bridge tests indicate a figure of 43 ohms at each of the designed frequencies.

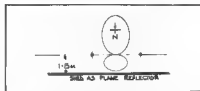
The simplicity and efficiency of this antenna commend its use for any home station where a model number of radials are possible. Multi-band 300 ohm ribbon stubs or inductively loaded short radials would be an alternative for consideration.

The 14 MHz sloper beam proved to be a valuable inclusion with modest gain and impressive front-to-back ratio for VK2/VK6. When activity around VK was slow the sloper provided some interesting DX. Although only worth two

used. As bare wire was used, the formula  $141/f$  applies for dipole length in metres. If covered wire had been used, as in the home station antenna, the formula  $136/f$  would apply. The height above ground is not ideal but a compromise to allow reaching the dipole ends to clip on the 7 MHz jumper.



Normal Figure-eight Pattern when phased array is fed in phase (RLB closed).



Shed as Plane Reflector.

Approximate pattern with RLB closed and beam spaced  $1/4 \lambda$  in front of reflector.

contest points per contact, working DX at this location was a breeze.

A 21 MHz vertical beam had been planned on the basis that it could be installed at ground level. Besides switching patterns from the operating position, it was designed to be set up a quarter wave in front of the shed. This would provide a large reflector with the idea of suppressing, or at least reducing, the rear lobe of the figure-eight pattern when feeding the elements in phase.

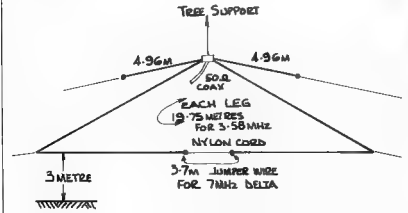


The 21 MHz vertical two-element beam using the shed as a reflector when in phase operation was relay switched.

The rocky ground at the point intended stopped any thoughts of getting support stakes in position. A two-wheel jinker left when bush fires had destroyed the tray top was wheeled into position alongside the shed. The vertical elements were lashed and U-bolts to this frame. Four radials per element were sloped down and weighted with rocks. Feed point impedance was around 30 ohms which the ATU handled with ease.

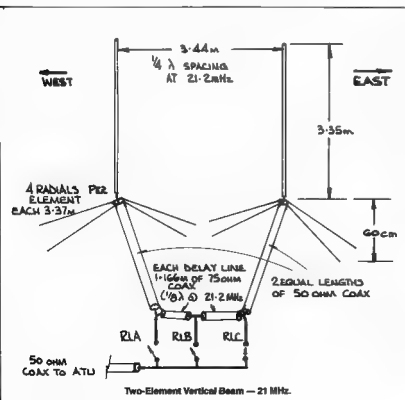
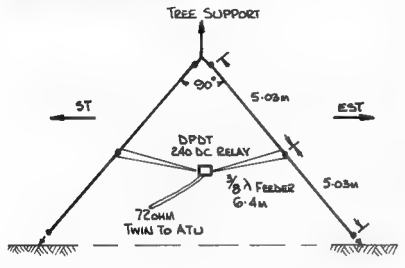
Listening tests indicated the beam worked east-west with some gain and excellent front-to-back ratio. However, when the figure-eight pattern was selected, results on Asian signals weren't as

**Inverted Dipoles 2.5/14 MHz — 7 MHz Delta.** This inverted dipole cut for 3.580 MHz plus jumper wire to convert to a Delta loop on 7.090 MHz is a copy of the same configuration used at the home QTH. Another Delta running roughly at right angles was added for 14.200 MHz. A common 50 ohm coaxial cable feed was



**Two-Element Sloper Beam — 14 MHz**  
The dimensions shown resonated at 14.190 MHz using the formula  $143/f$ , which is a good starting point for sloper calculation. The ends of the dipole were secured by nylon fishing line through soldered loops so there is no insulator end effect with the dimensions shown. A bell-wire twin-line switched the relay in a small plastic container hung from the tree. The twin-line use refers to '14.036' auto-cable, NOT the

usual figure-eight lighting twin flexible. A dip-oscillator put the velocity factor at 0.81 so the  $\frac{3}{8}\lambda$  feeders should be accurately checked. With no voltage applied to the relay, the beam fired east. Application of 24 volts DC selects the other dipole with the unused  $\frac{3}{8}\lambda$  in each case acting as inductive loading for a reflector element.



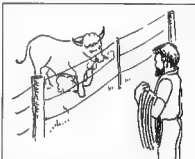
Two-Element Vertical Beam — 21 MHz.

expected. The frame carrying the beam was moved closer to the shed. Results sounded better. Finally the elements were positioned 1.8 metres in front of the reflector (close to an eighth-wave spacing). Up came the signals from the north and the east-west pattern appeared to be unchanged.

Tests with Ron VK5ON and Graham VK5KGF in Adelaide, confirmed the beam was working well. During the contest, JA, HL, and YC stations answered. "QZ Contest" calls, so it was useful to be able to switch patterns and pick out the weak VK2 and VK4 mobiles for contest points.

After a quick lunch, I tackled the remaining planned antenna. This would be a sloping terminated V-beam (sometimes referred to as a 'Covf' array). The V would slope down from a tree at about 11 metres to bundles of carbon resistors made up to measure about 600 ohms connected to earth rods. This antenna was to provide an approximate 70 degrees included angle for VK4-VK8. One leg was reeled out to the north. This was approximately 12 gauge wire recovered from a 240/110 volt step-down transformer. The other leg would go across an adjacent paddock.

At this point I became aware of the bull which wasn't supposed to be in that area over the weekend. Any approach to the fence brought a 'Oh no you don't' attitude from him. This was his domain and not to be used for antenna experiments. Considering the remaining time left, a convenient solution was to erect the one long



An "Antenna-Bull" Situation — "... not on this side, OMI!"

wire in four trees, roughly in a straight line which lined up on about 310 degrees. Not according to plan, but it would have to do. This long wire proved to be useful as the only radiator to work into Adelaide on 28 MHz. Considering the bearing, it was no surprise that it was effective with European DX on 14 MHz.

Only 45 minutes to starting time at 0700 UTC. David came back for sandwiches and coffee, pleased with his afternoon working DX on his favourite 14 MHz band. Both generators were performing faultlessly. Mine made a thumping din downhill by the dam and it would go on to echo right through the night. I hoped it would keep that ~~the~~ bull awake!

## CONTESTING

Operating went along at a brisk pace. A dupe sheet divided for the three and six hour rules had been set up on a picnic table next to the operating position. This was valuable as there were a high number of calls from stations for repeat contacts even under one hour. They appeared to have no recording to avoid dupes and delayed things at times debating the time of the last log entry. Two dupes did slip by my guard as fatigue set in along the way.

At 1630 UTC, David sounded ready to give-in when we worked. Besides being tired, my signals were causing QRM havoc at his site. I must have nodded off shortly after, as indicated by an indecipherable squiggle on the log sheet for 1640 UTC. It would be 1828 UTC before the next contact. A burst of static proved a most effective alarm clock. A couple of VK4s were mobile around



A Switch-board was used to select antennas and feed lines. 24 volts DC was used to control remote relays for the 14 MHz slopers and 21 MHz vertical beams. Tune up references for the ATU were recorded for quick band changes.



The mobile microphone was mounted on a tubing boom held in place by the ATU. Hands-free operation is an asset for contacting. Antenna selection board is on the wall above the rig.

VK2. They were pleasantly surprised to receive a call and after a short chat about the field day, exchanged contest numbers.

David had been up early hoping to see Halley's Comet and heard "the racket overloading his receiver" as he unkindly described my signal. A short while after he came up to cook breakfast while still keeping an eye on the eastern sky. I was more interested in operating than the Comet, so it was back to the rig, with only a short break for the WIA Broadcast, until the last contact at 0658 UTC.

#### Highlights of the weekend were:

- the low noise level on all bands
- Dodi HA8NF, calling on Saturday night on 14 MHz for a contact for his Jubilee 150 Award
- a long path 5 x 7 both ways with Maurice FT8YA, for a new country on 14 MHz
- working many friends made during J150 Nets who were giving out contest numbers as home stations to provide contest activity
- Jike who couldn't resist the "CO Contest" calls and wanted to be part of it
- working stations that would not have been possible at home, even allowing for the excellent band conditions over the field day weekend

Although two metre equipment was taken along in case of an emergency and VHF multipliers would have been handy, the final result of the 352 HF contacts in 24 hours was satisfying enough.



#### HOW ABOUT NEXT YEAR?

I have been asked this question many times. After all, the antennas have been stored for some future use. Perhaps next time will be with our local radio club when the extra help erecting antennas would be useful.

However, on one point I am sure. A serious approach to planning and multi-antenna installation is only worthwhile if the 24 hour section is entered. A much simpler set-up would be used if competing for only six hours!

## BEAM ROTATORS

It appears many amateurs have trouble with the rotor of the CDE Ham II failing to lock.

Here is a simple and cheap method of rectifying the fault.

Fred Lubach VK4RF

163 Loganlee Road, Loganlea, Qld. 4204

Listening around the bands, it appears that I am not the only one who has had trouble with the rotor of the CDE Ham II Beam Rotator failing to "lock" due to partial stripping of the teeth inside the lower casting (brake housing) and wear on the brake wedge.

As the cost of importing a new casting was prohibitive, over \$100, I devised a simple and very cheap method of rectifying the fault.

First, separate the upper and lower castings (there is no need to disconnect the control cables) and drill 12 quarter inch (6 mm) holes, every 30 degrees around the perimeter of the bottom housing, so that the holes appear in the centre of the worn teeth, vertically.

Next, insert quarter inch (6mm) bolts, approximately one inch (25mm) long, with the

head of the bolts inside, and lock into place with nuts on the outside.

The final step is to grind approximately an eighth of an inch (3 mm) off the brake wedge so that it clears the bolt heads when retracted, and re-assemble.

Taking the width of the bolt heads into account, whether they be square or hexagon, the beam will now be only able to travel about 20 degrees when locked. This modification has proved itself in gale-force winds at my QTH. It is interesting to note that later models have a square tooth design with matching square edge wedge.

The hardest part of this operation is taking the rotor down from the mast, and re-installing it...

## QSP

### PROPOSED EMC TECHNICAL STANDARDS FOR VCRs

The VCR performance shall not be affected if operated in a Lacher-line test-cell over the unwanted signal frequency range of 150 kHz to 150 MHz at 130 dB (uV/m) = 3 V/m field strength.

Television sets, which are operated with the VCRs, have already to meet this EMC standard. This standard will apply from Autumn (Europe).

Exceptions — Until March 31, 1987 the field strength of 115 dB (uV/m) applies for the range 2.500-4.250 MHz and 6.250-7.500 MHz. The field strength will be increased from April 1, 1987 to 120 dB (uV/m) = 1 V/m.

New VCRs will have to meet an EMC level of 130 dB (uV/m) = 3 V/m as from April 1, 1987 (except 3.5 and 7 MHz). 3.5 MHz is the critical frequency (VCR design).

DLIBU (Dipl Ing Gunter Schwarzbach, Hon Technical Officer of the DARC) found that the latest VCRs (made in West Germany) were immune to the following test cell field strengths:

147 dB (uV/m) = 22.4 V/m at 1.8 MHz

136 dB (uV/m) = 6.3 V/m at 3.5 MHz

146 dB (uV/m) = 26.2 V/m at 7.0 MHz

148 > 150 dB (uV/m) = 30 > V/m at 10.1 MHz

This shows what industry can do by careful design when requested by law.

The work of establishing standards was carried out by the DKE (West German Electro-technical Commission), the FTZ (equivalent to DOC in VQ) and the DARC (Deutscher Amateur Radio Club).

Written by Dr Ing Gerhard Blecher DL9DZ and translated from CQ-DL magazine, April 1986 by Hans Ruckert VK2AOL for Amateur Radio.

### IF ONLY THEY COULD SEE US NOW!

Crystal control is highly desirable for stability, but leaves you "worded" recommends using a variable-gate holder to achieve frequency excursions of up to 24 kc at 20 metres, yet retain stability of signal.

But, W1TS, prefers even more flexibility and uses a two-tube electron-coupled oscillator/exciter unit for maximum freedom to roam the bands.

From 50 years ago, QST, April 1986

### WATCHDOG TIMERS

"I have had a receiver sitting on 14.103 MHz for over an hour tonight copying solid continuous 'fill' characters from some poor packeteer who has his keying line stuck down. This has also been observed on several occasions on our local Bellof Wash two metre LAN frequencies. In addition to being very hard on your radio (few radios are designed for continuous commercial service and tend to get qu to warm after a few minutes of such service, and after an hour tend to develop a lot of 'krispy knitts' inside) this is also very illegal.

"I would advise packeteers to check to make

certain your watchdog timer is functioning. TNC 2 owners should make certain that JMP4 is not installed.

"I offer even a stronger concern for users of Kantronics KPC TNCs which apparently do not have any fail-safe watchdog timer included. I would advise all KPC users to build a watchdog and install it as-soon-as-practicable. Operating without a watchdog timer is like playing Russian Roulette."

W3RNI writing in Gateway, Vol 2, No 20, The AFSL Packet-Radio Newsletter.

**This method for learning the code is not for those that are experts or those who will learn by sound.**

# LEARNING THE CODE

**Rev Suter VK6SA**  
PO Box 261, Mandurrah, WA 6210  
© 1986

I have recently been hearing and re-reading some of the calls by the WIA for articles for publication, and have also been enjoying the articles that have been accepted for publication in response to such calls.

I am thus encouraged to make this contribution. It is not for those who are experts at the code. Neither is it for those who will learn by sound.

This method was given to me as an illuminated picture. An hour later I knew each letter (Others have since done the same). What an encouraging change that was from the previous 30 years of frustration of being "unable" to learn it.

The next step was the "slog" of building up

receiving speed. For this thanks to all Morse broadcasters and a special thanks to VK6s MY, PH and AUK.

The printed code in this article will immediately shape the dits and dahs into meaningful shapes and — Presto, here is meaning, here is Morse!!

The first step is to print faint large capitals with a pencil and then follow around these outlines in red felt-tipped pen with the dits and dahs of the letter concerned. The letter that you sketch should be at least two-centimetres high.

On Figure 1, you will see step two. That is a list of nine words which together include the whole alphabet; print each word on a separate card.

The words depicted have been very carefully selected so that confusion between letters in the same word is minimised.

I would suggest that you first learn only the letters of word one *with all the other letters covered*. Then learn word two, etc. This way you should quickly master the letters.

The next step is to learn the nine-word list so that you can go through it from memory whilst driving, talking, or whatever.

One day, you will enjoy Morse code the same as many folk like good music!

© 1986, Rev VK6SA, PO Box 261, Mandurrah, WA 6210 and printed in Amateur Radio with permission.

|   |  |   |
|---|--|---|
| <p>1. SAGE</p> <p>S    ···d'dit</p> <p>A    ·-d' dah</p> <p>G    --d' dah dah dit</p> <p>E    · dit</p>                                   | <p>4. HOPE</p> <p>H    ....</p> <p>O    ---</p> <p>P    ....</p> <p>E    · dit</p>             | <p>7. FADE</p> <p>F    ···-</p> <p>A    ·-d' dah</p> <p>D    --</p> <p>E    · dit</p>         |
| <p>2. QUIZ</p> <p>Q    ---d' dah d' dah</p> <p>U    ·-d' d' dah</p> <p>I    · d' dit</p> <p>Z    ---d' dah dah d'dit</p>                  | <p>5. BENT</p> <p>B    ....</p> <p>E    · dit</p> <p>N    --</p> <p>T    -</p>                 | <p>8. JOKE</p> <p>J    ---d' dah</p> <p>O    ---</p> <p>K    --</p> <p>E    · dit</p>         |
| <p>3. CLIVE</p> <p>C    ---d' dah d' dah</p> <p>L    ---d' dah d' dit</p> <p>I    · d' dit</p> <p>V    ---d' d' dah</p> <p>E    · dit</p> | <p>6. XRAY</p> <p>X    ---d' dah</p> <p>R    --</p> <p>A    ·-d' dah</p> <p>Y    ---d' dah</p> | <p>9. WARM</p> <p>W    ---d' dah</p> <p>A    ·-d' dah</p> <p>R    ·-d' dah</p> <p>M    --</p> |

# TECHNICAL SYMBOLS

From time to time Amateur Radio magazine and other radio magazines use symbols in technical articles. Eg The capital letter of Omega is used for ohms, lower case Lambda is used for wavelength. It is hoped the following article may explain to newcomers what the various symbols mean.

The Greek Alphabet is given for reference, as many Greek letters appear in Technical Texts

Units

| Small      | Capital   | Name    | English Equivalent  |
|------------|-----------|---------|---------------------|
| $\alpha$   | A         | Alpha   | a                   |
| $\beta$    | B         | Beta    | b                   |
| $\gamma$   | $\Gamma$  | Gamma   | g                   |
| $\delta$   | $\Delta$  | Delta   | delta (as in "met") |
| $\epsilon$ | E         | Epsilon | e (as in "met")     |
| $\zeta$    | Z         | Zeta    | z                   |
| $\eta$     | H         | Eta     | h                   |
| $\theta$   | $\Theta$  | Theta   | th                  |
| $\iota$    | I         | Iota    | i                   |
| $\kappa$   | K         | Kappa   | k                   |
| $\lambda$  | $\Lambda$ | Lambda  | l                   |
| $\mu$      | M         | Mu      | m                   |
| $\nu$      | N         | Nu      | n                   |
| $\xi$      | $\Xi$     | Kxi     | x                   |
| $\omicron$ | O         | Omicron | o (as in "olive")   |
| $\pi$      | $\Pi$     | Pi      | p                   |
| $\rho$     | P         | Rho     | r                   |
| $\sigma$   | $\Sigma$  | Sigma   | s                   |
| $\tau$     | T         | Tau     | t                   |
| $\upsilon$ | U         | Upsilon | u                   |
| $\phi$     | $\Phi$    | Phi     | ph (as in "school") |
| $\chi$     | X         | Chi     | ch (as in "school") |
| $\psi$     | $\Psi$    | Psi     | ps                  |
| $\omega$   | $\Omega$  | Omega   | o (as in "broke")   |

|  |          |
|--|----------|
| Specific Inductive Capacity or Dielectric Constant                             | K        |
| Electrostatic Field Strength   | X        |
| Electrostatic Displacement or Flux Density                                     | D        |
| Electrostatic Flux   | C        |
| Capacity   | L        |
| Magnetic Pole Strength   | M        |
| Permeability   | $\mu$    |
| Magnetic Field Strength  | H        |
| Magnetic Induction or Flux Density   | B        |
| Magnetic Reluctance  | S        |
| Magneto Motive Force   | G        |
| Self Inductance  | L        |
| Mutual Inductance  | M        |
| Reactance  | X        |
| Impedance  | Z        |
| Susceptance  | B        |
| Admittance   | Y        |
| Base of Napierian logs   | e        |
| Damping Factor   | $\delta$ |
| Logarithmic Decrement  | $\delta$ |
| Mutual conductance   | $\mu$    |
| Amplification factor   | $\mu$    |
| Percentage modulation  | m or A   |
| Coil amplification factor or Q factor or other active devices ( $\omega L/R$ ) | Q        |
| Velocity of EM Waves   | c        |

## Prefixes for Multiples and Submultiples of Quantities

| Multiple or Submultiple | Name   | Prefix |
|-------------------------|--------|--------|
| $10^6$                  | Mega-  | M      |
| $10^3$                  | Kilo-  | k      |
| $10^2$                  | Hecto- | H      |
| $10^1$                  | Centi- | c      |
| $10^{-1}$               | Milli- | m      |
| $10^{-2}$               | Micro- | $\mu$  |
| $10^{-3}$               | Nano-  | n      |
| $10^{-6}$               | Pico-  | p      |
| $10^{-9}$               | Atto-  | a      |

## Symbols for Quantities for Use in Electrical Equations, etc.

| Quantity                             | Sign           |
|--------------------------------------|----------------|
| Length                               | l              |
| Mass                                 | m              |
| Time                                 | t              |
| Angles                               | $\theta, \phi$ |
| Work or Energy                       | P              |
| Power                                | P              |
| Efficiency                           | $\eta$         |
| Period                               | T              |
| Frequency                            | f              |
| $2\pi \times$ frequency              | $\omega$       |
| Wave length                          | $\lambda$      |
| Phase displacement                   | $\phi$         |
| Temperature, Celsius                 | $t$ or $\phi$  |
| Temperature, absolute                | T or Q         |
| Quantity or charge of electricity    | Q              |
| Current                              | I              |
| Voltage (EMF or PD)                  | E or V         |
| Resistance                           | R              |
| Specific Resistance or Resistivity   | $\rho$         |
| Conductance                          | G              |
| Specific Conductance or Conductivity | $\gamma$       |

## Signs for Units Employed after Numerical Values

| Unit             | Abbreviation |
|------------------|--------------|
| Ampere           | A            |
| Volt             | V            |
| Ohm              | $\Omega$     |
| Coulomb          | C            |
| Joule            | J            |
| Watt             | W            |
| Farad            | F            |
| Henry            | H            |
| Watt-hour        | Wh           |
| Volt-Ampere      | VA           |
| Ampere-hour      | Ah           |
| Kilowatt         | kW           |
| Kilo-volt-ampere | kVA          |
| Kilowatt-hour    | kWh          |
| Decibel          | dB           |

# ANTENNAS FOR SATELLITE COMMUNICATIONS

Australia has been committed to communication by satellite, through the Intelsat network, since 1966, and we have now seen the commencement of the domestic system.

Antenna systems are a vital link in the transfer of information between the ground station and the satellite. The extension of existing services and development of new services, such as direct broadcast satellite and international business systems, has led to an increased number of sophisticated satellites in geostationary orbit. These changes have required innovation in many areas, including antenna technology.

reflector (Figure 1c and 1d) is used with a cluster of feed horns near the focus. Each feed horn produces a narrow beam and these multiple beams are combined to give the footprint.

Techniques for designing shaped beams are being developed at Radiophysics. As an example Figure five shows a design for a heptagon region (shown dashed), which is achieved with an offset Cassegrain antenna with 19 feed horns.

From CSIRO Division of Radiophysics Information Sheet No 84/22, written by T.S. Bird and contributed by Tim Mills VK2ZTM

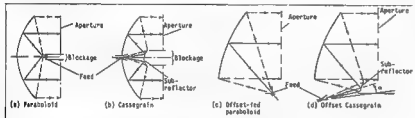


Figure 1 — Reflector antenna configurations.

For ground-station antennas it is common to use a symmetrical Cassegrain reflector configuration (Figure 1b), while on satellites an offset reflector arrangement (Figure 1c, d) is used because it is easier to stow for satellite launch and because the complicated feed network can be located close to the body of the spacecraft.

Figure two shows a typical radiation pattern of the Moore 1 ground station for the Intelsat system which was recently upgraded by Radiophysics in collaboration with OTC. The sharp beam and low radiation levels away from

the peak (sidelobes) ensure that only one satellite at a time is seen. Low sidelobes were achieved by careful design of the aperture illumination (see Figure 3). The desired result was obtained by adjusting the shape of both reflectors of the 27.4 metre Cassegrain. Another feature of the design is the use of wideband corrugated feed horns described in Information Sheet 84/21.

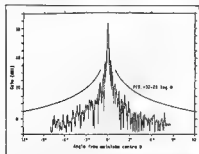


Figure 2 — Moore 1 ground station radiation pattern after upgrading. P(9) represents the maximum allowed level.

Shaped beams to illuminate a given coverage region (footprint) must be produced by an on-board satellite antenna, as shown for example in Figure 4. Commonly an offset

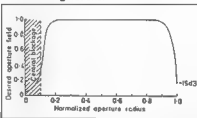


Figure 3 — The optimum design aperture distribution for maximum signal-to-noise ratio and low sidelobe levels.



Figure 4 — National Footprint.

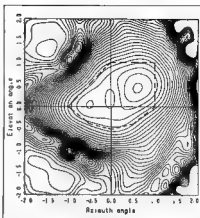


Figure 5 — Contours of intensity of a shaped beam in 1 dB intervals. Peak level is 40 dB.



**QSP**

## CT4 AMATEUR SEEKS SPONSOR FOR MIGRATION TO VK

We have had some correspondence with a Portuguese amateur, Fernando J Fideigo CT4VQ, ex CR6QZ and ZS1ABG, who would like to migrate to Australia and seeks an Australian sponsor who may be able to find him employment.

He has had four years experience as a waiter in Portugal (1975-79), also as a salesman (1979-83) and a bank clerk in South Africa (1983-86). His English is good, and he is an enthusiastic DX operator. He is aged 32, married, no children.

If any reader (preferably a restaurateur) is able to help, more information is available from the Editor, PO Box 300, Caulfield South, Vic. 3162



1926-1986  
STANLEY JURELLO

THE FIRST SIGNALS FROM GLOUCESTER AMATEUR RADIO SOCIETY IN 1926 SHOULD BY NOW HAVE REACHED ABOUT 36 x 10<sup>13</sup> MILES INTO SPACE!

NO QSL, YET RECEIVED!

## GLOUCESTER AMATEUR RADIO SOCIETY (c 1926)

This year, 1986, is the 900th anniversary of the Doomsday Book, an historic document in British history. The original idea was conceived in Gloucester Cathedral.

To celebrate this historic event, the Gloucester Amateur Radio Society has applied for, and received permission to use, the call sign GB9DB during the month of September.

The station will commence transmitting on Saturday, September 6, 1986 at 1200 UTC on HF and also VHF. The opening time and date coincides with the opening of the Gloucester Local History Festival, which will be located at the same site.

The station will continue operating on various days during September using the special call sign. The station will be located at Gloster Oxtalls Campus, Oxtalls Lane, Gloucester, and QSL cards will be available for stations that contact GB9DB. QSLs may be sent via the RSGB Bureau, or direct to G4ARM, 12 Laura Close, Longlevens, Gloucester, GL2 5JH, Great Britain.

Contributed by Nicholas Nigau G4AWT Secretary GARS

# NEAR-FIELD AND HOLOGRAPHIC ANTENNA MEASUREMENTS

It is essential to be able to measure the performance of antennas used in satellite and ground-based communications. Since the early 1970s, largely in response to the increasing use of satellite communications, new measurement methods have been developed to overcome some limitations in classical methods of antenna measurement. Two techniques, the near-field and holographic methods, are currently under investigation at Radiophysics. These methods, while furnishing the usual radiation pattern measurements, provide extra information which can be used for antenna alignment and assessment. In addition the holographic method is efficient for in situ measurement of surface errors in large-reflector antennas used for satellite communications and radio astronomy.

samples of the signal received by a probe antenna at selected points on the surface the radiation pattern of the test antenna in the far-field region can be computed.

The holographic technique (Figure 2c) is similar to the near-field method in that samples of the receiver signal are taken on a spherical surface from which the far-field radiation pattern is computed. However, because the samples are taken at a greater distance the computations involved are considerably simpler, and therefore faster. Another difference is that a moving probe is unnecessary, as scanning is achieved by rotating the test antenna to specified angles to receive signals from a transmitter. The holographic antenna range at Radiophysics currently operates up to a frequency of 18 GHz, is fully automated and takes antennas up to two

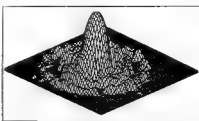


Figure 4 — Radiation pattern of parabolic reflector computed from holographic range data.

An advantage of near-field and holographic methods is that more information about an antenna is obtained in a single measurement. For example, Figure three shows the microwave image of a 1.8 metre diameter parabolic dish measured at 5 GHz on the holographic range. Such images can pinpoint alignment defects in the antenna and also allow assessment of reflector surface errors.

Figure four represents the radiation pattern of the above antenna computed from the holographic range data.

From CSIRO Division of Radiophysics Information Sheet No 64/18, written by G T Poulton and T S Blunt and contributed by Tim Miles VK2ZTH



**QSP**

## OUT TO PASTURE

△ The oldest continually operating communications satellite has been turned off after 19 years of service. The ATS-1 was launched in December 1966, providing an important communications link over the Pacific Ocean. It was designed originally for a three-year mission, but surpassed its design life by more than six times. The satellite carried several scientific instruments, including a spin-scan camera that provided the first wide-angle pictures of the Earth's full disc and helped meteorologists track storm fronts. ATS-1 also was used for communications during emergencies and for day-to-day management of the US Trust Territory of the Pacific Islands, a group of more than 2000 islands, commonly known as Micronesia.

From ITU Telecommunication Journal, April 1986

## NEW DXAC CHAIRMAN

John Parrott W4FRU, has been appointed DX Advisory Committee Chairman, following the resignation of Bob Thompson K8SSJ.

Condensed from The ARRL Letter, June 6, 1986

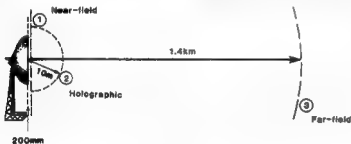


Figure 1.

The techniques under investigation are illustrated in Figure 1 for a three-metre diameter microwave dish antenna for a satellite system. Position three represents the far-field distance conventionally used for antenna measurements. The near-field method (position one) measures very close to the antenna, whereas the holographic method (position two) operates at a somewhat greater distance, although still much less than required for conventional far-field measurements.

An antenna range employing the near-field method is at present being set-up at Radiophysics. This will be fully computer-controlled and will measure antennas up to 2.5 metres in diameter. The type of surface surrounding the antenna on which the radiated signal is sampled (Figure 2 (a) and (b)) illustrates the planar and cylindrical scanning surfaces chosen for the facility at Radiophysics. From

metres in diameter. The software developed for this facility is quite general and in the future will be utilised for in situ measurements of large reflector antennas.



Figure 3 — Contours of intensity of the signal produced in the aperture of a parabolic reflector at 2 dB intervals.

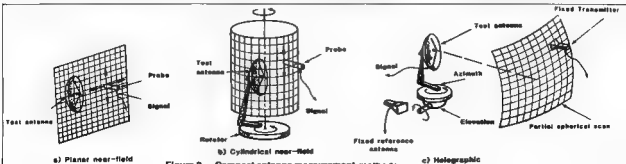


Figure 2 — Compact antenna measurement methods.

# REMEMBRANCE DAY CONTEST SCORING

Ron Henderson VK1RH  
171 Kingsford Smith Drive, Melba, ACT  
2615

*At the 1986 Federal Conference, the Federal Contest Manager, in his Annual Report to the Federal Council, recommended that the scoring formula for the Remembrance Day Contest be examined by someone versed in statistics.*

The writer is not academically well qualified in statistics, but as one involved in the revision of the RD Contest scoring system in 1981, believes he can present the logic behind the current system, together with partially refined data from the past 12 years. This basis should make subsequent analysis by statistically bent members easier and their contribution is invited to fulfill the Convention Report recommendation.

The opportunity was also taken to separate the VK6 results to further recommendation.

## AIM OF THE RD CONTEST

The aim of the RD Contest, as expressed in past contest rules and in the Federal Contest Managers terms of reference is:

This contest is held to commemorate those amateurs who died during the Second World War and is designed to encourage friendly participation between all amateurs and to help in the improvement of operating skills of all participants.

## HISTORICAL BACKGROUND

The Remembrance Day Contest scoring system has evolved over some 40 years with changes to keep pace with changing licensing conditions and members wishes.

The early scoring systems applied to full call licensees only (there were no other) and a scoring table was devised to accommodate the difficulties faced with interstate contacts as well as the differing numbers of amateurs in each State.

With the advent of the Limited Licence, VHF/UHF contacts increased and intra-State contacts were permitted to score. The re-contact frequency for these has been a point of conjecture continuing to this day.

Various trophy score formulae were used. These included averaging the top six log entries, normalising by logs submitted to IL-licenses issued (a participation factor), VHF/UHF bonuses and double score for CW, to mention a few.

The advent of the Novice Licence added new difficulties to RD contest management and in 1980, the VK6 Division reviewed the past performance of Divisions in the contest and recommended a simple scoring system coupled with a revised trophy formula to be adopted. The scoring base proposed was one point per contact and the formula was to include participation, activity and a weighting factor to equalise differing state performances.

## PARTICIPATION FACTOR

The participation factor chosen was the percentage of logs submitted to the licensees issued, by Division. This involvement measure is consistent with the aims of the contest and is shown in Table 1 for the past 12 years, together

Figure 1 — Participation (Number of Logs Submitted).

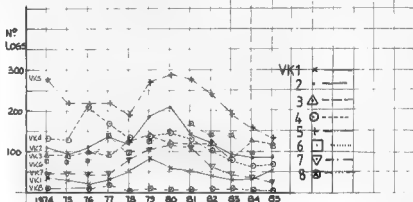
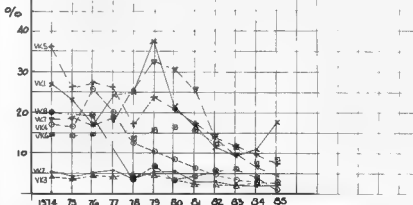


Figure 2 — Participation Factor (Number of Logs divided by Number of licensees).



with the number of logs received. Participation is plotted on Figures 1 and 2, first as the number of logs submitted (Figure 1), then as the participation factor (percentage logs to licensees on Figure 2).

Figure 1 suggests that the number of entrants has been remarkably constant over 12 years whilst the licenced population has grown, yielding the falling participation factors of Figure 2.

## ACTIVITY FACTOR

For the activity factor, the ratio of contacts to

logs submitted was adopted. This is in effect, a Divisions average contacts per entrant.

Unfortunately, neither the *Amateur Radio* magazine contest results nor the Contest Manager's records show the "contacts made" details for a number of years between 1978 and 1980, however by using average divisional points per contact it is possible to approximate to contacts made. Post 1980, one point per contact prevails (ignoring minor errors due to "CW counts double" interludes in the scoring system).

Activity factors, computed as both points per



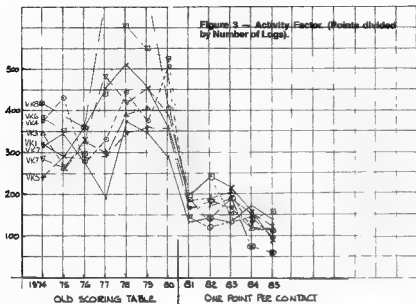


Figure 3 — Activity Factor (Points divided by Number of Logs).

TABLE 1 — RD CONTEST LOGS SUBMITTED AND PARTICIPATION FACTOR = (Number Logs divided by Number Licenses) %

| Division  | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>VK1</b><br>Logs Received<br>Participation<br>Factor %      | 95   | 29   | 28   | 35   | 51   | 86   | 60   | 32   | 41   | 30   | 34   | 54   |
| <b>VK2</b><br>Logs Received<br>Participation<br>Factor %      | 26.9 | 23.0 | 16.8 | 24.5 | 28.0 | 37.8 | 21.4 | 16.8 | 11.8 | 9.3  | 10.8 | 17.8 |
| <b>VK3</b><br>Logs Received<br>Participation<br>Factor %      | 89   | 89   | 97   | 91   | 125  | 141  | 123  | 116  | 121  | 85   | 127  | 121  |
| <b>VK4</b><br>Logs Received<br>Participation<br>Factor %      | 4.3  | 4.2  | 4.5  | 4.1  | 4.8  | 4.8  | 3.4  | 2.7  | 2.6  | 2.1  | 2.9  | 2.7  |
| <b>VK5</b><br>Logs Received<br>Participation<br>Factor %      | 132  | 128  | 210  | 170  | 134  | 139  | 144  | 131  | 102  | 77   | 65   | 69   |
| <b>VK6</b><br>Logs Received<br>Participation<br>Factor %      | 17.0 | 16.4 | 23.6 | 20.0 | 12.5 | 10.4 | 8.3  | 6.2  | 4.8  | 3.3  | 2.7  | 2.8  |
| <b>VK7</b><br>Logs Received<br>Participation<br>Factor %      | 278  | 218  | 217  | 220  | 190  | 272  | 288  | 278  | 242  | 193  | 160  | 134  |
| <b>VK8</b><br>Logs Received<br>Participation<br>Factor %      | 36.0 | 25.9 | 27.3 | 28.2 | 16.9 | 23.7 | 21.2 | 17.0 | 13.8 | 11.9 | 9.4  | 7.7  |
| <b>VK9/VK10</b><br>Logs Received<br>Participation<br>Factor % | 77   | 74   | 77   | 138  | 96   | 123  | 148  | 170  | 139  | 141  | 96   | 117  |
| <b>VK11</b><br>Logs Received<br>Participation<br>Factor %     | 14.6 | 14.1 | 14.8 | 23.8 | 13.6 | 15.5 | 16.3 | 13.6 | 11.6 | 11.5 | 7.3  | 8.2  |
| <b>VK12</b><br>Logs Received<br>Participation<br>Factor %     | 42   | 44   | 41   | 46   | 51   | 104  | 118  | 110  | 64   | 44   | 37   | 28   |
| <b>VK13</b><br>Logs Received<br>Participation<br>Factor %     | 16.1 | 16.5 | 16.9 | 18.3 | 25.2 | 32.3 | 30.7 | 25.2 | 13.7 | 9.2  | 6.8  | 4.5  |
| <b>VK14</b><br>Logs Received<br>Participation<br>Factor %     | 11   | 10   | 18   | 4    | 10   | 6    | 7    | 8    | 10   | 6    | 2    |      |
| <b>VK15</b><br>Logs Received<br>Participation<br>Factor %     | 19.6 | 19.0 |      |      | 3.6  | 6.7  | 3.5  | 4.1  | 5.4  | 6.0  | 3.8  | 1.2  |

log and contacts per log, are shown in Table 2 and plotted on Figures 3 and 4. After removing the pre-1980 scoring table influence from Figure 3 to create Figure 4, the vestige of a sunspot cycle periodic variation can be detected in the resulting activity curves, which are reasonably consistent and not subject to great variations over 12 years.

#### RAW SCORES

The product of the participation factor and the activity factor yields the raw scores which must be weighted to compensate for historical divisional performance differences. The raw scores arrived at from Tables 1 and 2 are shown in Table 3. Unfortunately, the mathematical

expression for the raw score shows numbers of logs submitted as both a numerator and denominator, viz:

$$\text{Raw Score} = \frac{\text{No logs submitted}}{\text{No licenses issued}} \times \frac{\text{Contest points}}{\text{No logs submitted}}$$

This mathematical correctness has confused some members who have assumed that as the expression cancels it is excluded from consideration.

#### WEIGHTING FACTORS

To the raw scores there are assigned weighting factors or multipliers which are necessary to

achieve a seven-way dead heat. These are shown in Table 4.

When the contest rules are announced in Amateur Radio each year, the Contest Manager issues the current years weighting factors, actually predictions based upon a linear least squares fit to each divisions past 10 years of weighting factors and projected forward one year.

Figure 5 shows each division's achieved weighting factors, the linear fit and the predicted next years (1986) factors. The linear fits are at times not particularly brilliant due to scatter in the data (see VK2), but their use avoids the need to use higher order curves of more dubious application.

#### WHERE TO IN THE FUTURE?

The writer believes the requirements of the VK6 review have been achieved, for the scoring system is simple, both participation and activity are factors in the trophy formula and all divisions have an equal chance of winning. There is concern that a division may run dead in order to receive a high weighting factor, however this poor performance would be necessary over many years to affect the curve fitting over 10 years.

One way to achieve this would be to not submit entries for several years. I do not think amateurs scattered over a State could be "organised" in this manner.

What about some of the other rules? The VHF/UHF re-contact interval has been two-hours in 1980, one-hour from 1981 to 1984, three-hours in 1985, and two-hours this year. The interval has to be short enough to retain the VHF/UHF operators interest and participation, yet long enough for the VHF/UHF intra-State contacts (both ends of which count to the same division) not to swamp the contest results.

#### CONCLUSIONS

The RD Contest scoring system and trophy formula have changed over the 40-plus years of the contest, the current system aims to include participation and involvement, to which a weighting factor is applied to give each Division an equal chance of winning the trophy based upon past performance.

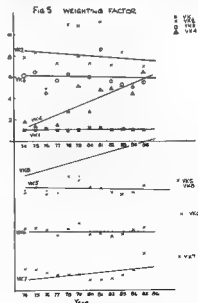


Figure 5 — Weighting Factor.

Figure 4 — Activity Factor. (Contacts divided by Number of Logs)

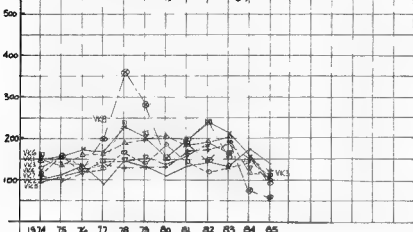


TABLE 2 — RD CONTEST POINTS PER LOG AND CONTACTS PER LOG ENTERED

|                                | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>VK1</b><br>Points per Log   | 380  | 288  | 358  | 433  | 311  | 432  | 354  | 197  | 241  | 217  | 180  | 99   |
| Contacts per Log               | 147  | 198  | 173  | 159  | 226  | 202  | 198  | 197  | 241  | 217  | 160  | 99   |
| <b>VK2</b><br>Points per Log   | 317  | 343  | 271  | 188  | 374  | 352  | 289  | 136  | 143  | 133  | 173  | 142  |
| Contacts per Log               | 99   | 110  | 134  | 90   | 144  | 135  | 111  | 136  | 143  | 133  | 172  | 142  |
| <b>VK3</b><br>Points per Log   | 343  | 262  | 324  | 303  | 388  | 404  | 421  | 185  | 191  | 206  | 120  | 117  |
| Contacts per Log               | 148  | 132  | 160  | 164  | 189  | 197  | 206  | 185  | 191  | 206  | 120  | 117  |
| <b>VK4</b><br>Points per Log   | 372  | 433  | 275  | 329  | 443  | 375  | 305  | 145  | 122  | 130  | 147  | 96   |
| Contacts per Log               | 128  | 152  | 117  | 127  | 165  | 140  | 188  | 145  | 122  | 130  | 147  | 96   |
| <b>VK5</b><br>Points per Log   | 242  | 280  | 286  | 295  | 347  | 364  | 358  | 170  | 173  | 188  | 152  | 124  |
| Contacts per Log               | 84   | 122  | 137  | 129  | 135  | 133  | 170  | 173  | 188  | 152  | 124  | 124  |
| <b>VK6/9</b><br>Points per Log | 379  | 349  | 294  | 437  | 607  | 547  | 526  | 196  | 240  | 152  | 144  | 110  |
| Contacts per Log               | 152  | 137  | 133  | 142  | 235  | 212  | 204  | 196  | 240  | 152  | 144  | 110  |
| <b>VK7</b><br>Points per Log   | 289  | 269  | 328  | 482  | 421  | 449  | 390  | 164  | 185  | 168  | 131  | 110  |
| Contacts per Log               | 107  | 100  | 119  | 144  | 147  | 154  | 138  | 164  | 185  | 168  | 131  | 110  |
| <b>VK8</b><br>Points per Log   | 415  | 380  | 822  | 909  | 760  | 408  | 183  | 143  | 191  | 75   | 61   | 61   |
| Contacts per Log               | 114  | 126  | 197  | 359  | 282  | 151  | 183  | 143  | 191  | 75   | 61   | 61   |

Post 1980 scoring was essentially one point per contact

TABLE 3 — RD CONTEST RAW SCORES = PARTICIPATION FACTOR X ACTIVITY FACTOR

| AR Reference | 1974<br>Nov 74 | 1975<br>Nov 75 | 1976<br>Dec 76 | 1977<br>Feb 78 | 1978<br>Feb 79 | 1979<br>Feb 80 | 1980<br>Nov 80 | 1981<br>Jun 82 | 1982 | 1983 | 1984 | 1985<br>Feb 86 |
|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|------|------|----------------|
| VK1          | 39.4           | 35.9           | 29.1           | 36.6           | 57.1           | 75.9           | 33.9           | 31.9           | 28.1 | 20.1 | 17.3 | 17.5           |
| VK2          | 3.0            | 4.4            | 6.7            | 5.2            | 5.2            | 7.0            | 5.8            | 3.5            | 4.0  | 2.7  | 3.2  | 2.5            |
| VK3          | 6.4            | 3.5            | 7.3            | 6.7            | 9.1            | 9.5            | 7.0            | 4.6            | 5.1  | 4.2  | 3.4  | 3.2            |
| VK4          | 21.4           | 24.9           | 30.0           | 29.3           | 20.6           | 14.5           | 15.7           | 8.2            | 5.8  | 4.3  | 3.9  | 2.7            |
| VK5          | 33.3           | 21.8           | 33.2           | 33.3           | 21.3           | 32.0           | 25.0           | 24.6           | 24.4 | 22.4 | 14.3 | 9.6            |
| VK6/9        | 22.3           | 19.3           | 19.6           | 33.8           | 32.0           | 32.9           | 33.3           | 28.5           | 28.4 | 17.5 | 10.4 | 9.0            |
| VK7          | 19.5           | 18.5           | 20.0           | 26.5           | 37.1           | 49.7           | 41.8           | 28.2           | 25.4 | 15.5 | 8.9  | 5.0            |
| VK8          | 28.7           | N/A            | 24.1           | N/A            | 13.1           | 28.1           | 5.3            | 5.3            | 7.7  | 11.4 | 2.8  | 7              |

• Complete range of **MIRAGE (USA)** equipment including 6m, 2m and 70cm amplifiers, also peak reading watt/SWR meters. All have a five year warranty.

• Comprehensive range of HF VHF and UHF Communications Antennas and Accessories, suit amateurs, CBers, and SWLers. Our Log Periodics replace out-dated broadband.

• High gain VHF and UHF TV and Scanning Antennas.

• Butt section Aluminium Towers.

• Range of Low Loss Coaxial Cable and Connectors. Also Debglass Guys.

Write for our latest Catalogue.

**ATN ANTENNAS**

**56 CAMPBELL STREET,  
BIRCHM. VIC 3483,  
PHONE: (054) 92 2224**

## RADIO AT THE GAMES

During early August 1986, the Korean Amateur Radio League Inc (KARL) has been granted permission to install radio facilities in the Olympic site for the purpose of enabling KARL volunteers to provide traffic service for competitors at the games. The Korean Administration has also authorised all visiting competitors and officers of games who possess amateur licenses to make QSOs from the radio facilities available at the Olympic site.

In an effort to help achieve a high status for radio amateurs around the world by its support of amateur radio at the 86 and 88 Olympics, the Administration plans to issue temporary operating licenses to those visiting competitors and officials from all countries including those which do not have reciprocal agreements with Korea.

All visiting amateurs are advised not to take any type of portable transceivers including hand-helds, into the Republic of Korea, as the use of portable radios by amateurs is prohibited.

To commemorate the occasion, the following special stations will be operating during the games period.

**88 Asian Games — 8K8GAG**

**88 Seoul Olympic Games — 8K8SOG**

During the individual HF stations will use the suffix of 86 for the Asian Games and 88 for the Seoul Olympic Games.

Contributed by Young Soon Park, HX1UFM, President, KARL.

## NEW NAME, NEW NUMBER!

The Australian Coastal Surveillance Centre is now known by the title **Federal Sea Safety and Surveillance Centre**. Telephone numbers are as follows:

Coastwatch (Emergency unusual or suspicious marine or aircraft activities in coastal areas — (062) 47 5656 — (Free STD call or reverse charges)

Search and Rescue (Sea Safety) — (062) 47 5244

Contributed by Alan Harris VK1WX

TABLE 4 — RD CONTEST ACHIEVED WEIGHTING FACTORS

|       |      |      |      |      |       |       |      |       |      |      |      |       |
|-------|------|------|------|------|-------|-------|------|-------|------|------|------|-------|
| VK1   | 1.00 | 1.00 | 1.12 | 1.00 | 1.00  | 1.00  | 1.22 | 1.23  | 1.01 | 1.11 | 1.00 | 1.00  |
| VK2   | 7.88 | 8.16 | 4.89 | 7.39 | 10.90 | 10.80 | 7.28 | 11.20 | 7.10 | 8.30 | 5.38 | 7.00  |
| VK3   | 6.16 | 6.53 | 4.48 | 5.73 | 6.30  | 8.00  | 8.01 | 6.59  | 3.60 | 3.33 | 5.05 | 3.47  |
| VK4   | 1.84 | 1.44 | 1.09 | 1.52 | 2.77  | 5.22  | 2.67 | 4.77  | 4.80 | 3.21 | 4.41 | 6.48  |
| VK5   | 1.18 | 1.65 | 1.00 | 1.16 | 2.68  | 2.37  | 1.67 | 1.56  | 1.20 | 1.00 | 1.21 | 1.62  |
| VK6/9 | 1.77 | 1.86 | 1.67 | 1.14 | 1.78  | 2.31  | 1.26 | 1.37  | 1.00 | 1.28 | 1.98 | 1.94  |
| VK7   | 2.02 | 1.84 | 1.84 | 1.48 | 1.54  | 1.53  | 1.00 | 1.00  | 1.12 | 1.48 | 1.83 | 3.50  |
| VK8   | 1.37 | N/A  | 1.38 | N/A  | 4.40  | 2.70  | 7.90 | 7.38  | 3.68 | 1.96 | 6.20 | 23.90 |

## PROJECTED WEIGHTING FACTORS FOR 1986

|     |     |       |     |
|-----|-----|-------|-----|
| VK1 | 1.1 | VK5   | 1.4 |
| VK2 | 7.8 | VK6/9 | 1.5 |
| VK3 | 8.9 | VK7   | 2.5 |
| VK4 | 8.2 | VK8   | 6.2 |

## GOOD NEWS FOR TWO-LETTER CALL SIGN HOLDERS

The Federal Office has received several complaints from members that two-letter call signs were difficult to find when embedded amongst the three-letter call signs in the 1985/86 Call Book.

The call sign listing was prepared on the WIA computer where all sort programs do a straight ASCII sort. This leaves the two-letter call signs in an alphabetical form amongst the three-letter calls.

New programs have been written that will sort by length of call sign, hence the 1988/89 Call Book will have the two-letter calls preceding the three-letter ones.

At the 1986 Federal Convention, Council resolved that WIA members should be identified as such in the Call Book. This will be done in the 1988/89 Call Book by placing a symbol before the call sign of WIA members. We apologise in advance to any members whose second call sign may not be identified correctly.

## CONVERSION OF THE PYE OVERLAND FM-738 TO SIX METRES FM

Iain Keenan VK3AYK

6 Pretoria Street, Caulfield South, Vic. 3182

With the disappearance of Channel 0 in the Melbourne area, this should provide an ideal climate for an increase in six metre activity, particularly the FM net frequency on 52.525 MHz.

Through disposal outlets, there have been available at various times, the Pye FM-738 which is eminently suitable for conversion to six metres.

Before conversion, give the unit an external visual check to ensure that everything is in order, etc.

## LOW PASS FILTER

Remove the two 10 pF capacitors and replace them with 33 pF capacitors. Next remove the 30 pF capacitor and replace it with a 68 pF capacitor. Good quality ceramic high voltage types should be used (630 volts).

## TRANSMITTER MODIFICATION

In order to reduce the work associated with the transmitter exciter board, the transmit crystal formula is changed from divide by 24 to divide by 18. This places all tuned circuits in the exciter within the tuning range of the new frequency.

Turning now to the main transmitter chassis, pad both the primary and secondary of T203 with a 22 pF disc ceramic capacitor (630 volts). Rewind the plate coil of V1B with 12 turns of 18 gauge enamelled wire, the same diameter as the original coil. Rewind V2's grid coil with six turns of 18 gauge enamelled wire, also the same diameter as the original coil.

Finally, rewind the PA (V2) plate with 14 turns of 18 gauge enamelled wire the same as the original diameter.

## TRANSMITTER ALIGNMENT

Disconnect R211 (47 ohm) from PA screen pin 7 and connect a power meter to the aerial socket. Screw the slug T11 so that it is flush with the top of the can then screw the slugs of T12 and T13 until the bottom ends of the slugs are flush with the printed circuit board.

Screw the slug of T202 flush with the bottom of the can, then screw the top and bottom slugs of T203 to either ends of the former.

Insert a 3.282.81 kHz D-style series resonant crystal into the crystal socket. Place the positive lead of a DC voltmeter (2.5 volts) to TPX and the negative lead to the negative supply (chassis).

Adjust T11 for maximum (a slight peak). Move the meter to TPV and adjust T12 for maximum indication, then repeat T11 for maximum. Move the meter to TPZ (circuit board under chassis) and peak T13 for maximum.

Place meter on pin 4 of test socket (below aerial connector) and adjust the slug of T202 for maximum indication. (Place the positive of the meter to the chassis and the negative to pin 4). Next readjust T13 for a peak. Move meter to pin 5 of test socket and adjust bottom and top slugs of T203 for maximum.

Transfer the meter to pin 7 and adjust C220, C221, and C222 for maximum. Keep C221 and C222 equal in capacitance. Reconnect R211 (PA screen resistor) and adjust C224 for maximum output into the power meter, then repeat C220, C221, C222, and C224, together with the PA coupling link into the power meter. This may have to be repeated several times and depending on the age of the valves, 15 to 25 watts should be obtained.

Final tuning of the valve stages should be done with the unit sitting on the top cover or a metal plate to allow for detuning of the high power stages when the radio is finally placed into its cover. When tuning is completed, momentarily remove the transmit crystal and output should fall to zero. Then set the transmitter crystal and set the deviation to about 5 kHz. This can be done with the help of another station, off-air (RV1).

## RECEIVER MODIFICATION

Once again, to simplify modifications, the crystal formula is altered to inject on the high side of the carrier frequency.

Receiver Crystal Operating Frequency + 10.7  
Frequency =

2

Gently remove the cans from the front end coils. Solder a 10 pF ceramic capacitor across L1, remove the 10 pF capacitor from across L2 and replace it with a 22 pF. Remove the 10 pF from L3 and solder a 22 pF in its place. Remove the remaining 10 pF from across L4 and L5 and place a 22 pF capacitor across L4 and L5.

## RECEIVER ALIGNMENT

Insert a 31812.5 kHz series resonant D-style crystal into the crystal socket and, with a suitable high impedance RF AC meter connected across the socket, adjust the series crystal coil for maximum reading. With a DC multi-meter on the 2.5 volt range, connect the positive lead to TPZ (next to C25 on the main board) and the negative lead to the negative supply, and adjust L5 for maximum reading. Then connect the meter to pin 1 on the test socket (signal/strength indication). Connect a signal generator, tuned to 52.525 MHz, via a two turn coupling link to L5 and tune L5 for maximum signal. Repeat for L4. Next, connect the signal to the aerial connector and adjust L1, L2, and L3 for maximum reading, reducing the signal generator level as required. Carefully refit all the front end cans and repeat L5, L4, L3, L2, L1 and L6 several times for maximum signal.

When complete, if you are able to measure the quieting it should be 20 dB for .5 uV PD input or better.

Finally, net the receiver crystal by placing the meter on pin 3 of the test socket and, with a signal known to be on frequency, adjust the series crystal coil slug for zero volts on the meter.

So, there it is — the conversion is not difficult and can be done in a couple of hours. I look forward to hearing you on six metres!

**EDITORIAL NOTE:** Due to space limitations, circuit diagrams cannot be reproduced here. Those requiring copies for their personal use may obtain them from the WIA Federal Office, PO Box 300, Caulfield South, Vic 3182, on request accompanied by a business sized SASE.

## SPACE STATION

The Soviet Union has a Space Station, Mir, which was launched on February 9. The station has been heard in Canada on 143.825. Other frequencies reported to be in use are 121.750, 142.400, 142.417, 142.800, 143.144, 143.825, 166.000 and 192.040 MHz.

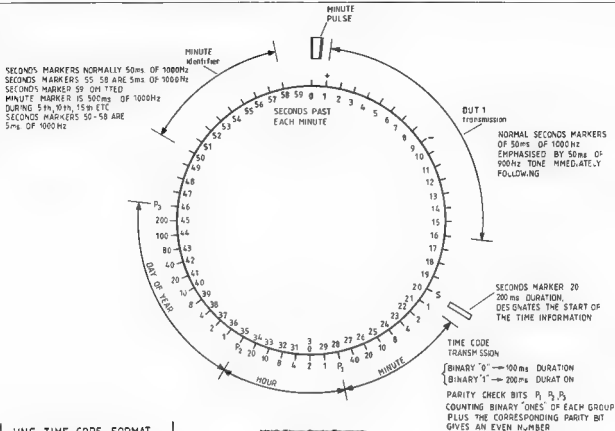
From CRRR News April 30

# Novice Notes

## NEW TIME CODE FOR VNG



Drew Diamond VK3XU  
Lot 2, Gatters Road, Wonga Park, Vic. 3715



VNG TIME CODE FORMAT

VNG Time Code Format

A short wave standard frequency and time signal broadcasting service VNG has operated from Radio Lyndhurst, Victoria, for 20 years. Telecom Research Laboratories were responsible for the establishment of the service and continue to maintain the carrier frequencies and instant of time, as transmitted, to within close tolerances of the Telecom (ATC) Standard of Time and Frequency operated at the Clayton Laboratories complex.

An updating of the broadcast time code format has been implemented which adds time of day and day number of the year information without alteration to the existing minute, five-minute and 10-minute identifying sequences or DUT1 coding. The DUT1 Code relates the deviation between the Earth's angular position time scale UT1 and the Co-ordinated Universal Time Scale UTC.

The addition of this extra information in binary-coded-decimal (BCD) form, will enable time code receivers to operate directly from the received signal by decoding the pulse sequences and updating a receiver's time output

completely every minute.

For maximum security under marginal reception conditions, the so-called "slow code" at a bit rate of one Hertz has been adopted, the complete information thus extending over most of one minute. The low transmission rate also permits decoding by the use of simple recorders.

As VNG has Australia-wide coverage, the upgraded time service will have many new applications where HF radio reception is the only convenient source of accurate time information. Such applications include surveying, data logging, telemetry systems and shipping.

The method of encoding used complies with CCIR recommendations for Time Codes and is similar to the "slow codes" transmitted from the standard frequency and time signal stations MSF at Rugby in England and DCF77 near Frankfurt, West Germany.

The new code has been on air since May 14, 1986 and has created renewed interest in the VNG service provided by Telecom.



**QSP**

### REGION 2 Conference

In commemoration of the IARU Region 2 Conference, which will be held in Buenos Aires from October 20-25, 12 local radio clubs in Argentina will be operating special event stations signing AZ1ARU/1; AZ1ARU/2 ... AZ1ARU/12. The operations will continue until October 31.

QSL cards for AZ1ARU/5 should go to LUBFAZ QSL information for the other 11 stations is, as yet, unknown.

From THE APRIL Letter May 23, 1986

### WHAT TIME IS IT?

There are many interesting stations to listen for when you want to catch the time: WWV from Fort Collins, CO on 2.5; 5; 10; 15; and 20 MHz — WWVH from Hawaii on 2.5, 5, 10 and 15 MHz — JJY from Tokyo on 2.5; 5, 10 and 15 MHz — CHU from Ottawa on 3.330; 7.335 and 14.670 MHz — VNG from Lyndhurst, Australia on 4.500; 7.500 and 12.000 MHz — OLB5 from Czechoslovakia on 3.170 MHz — VVC from Calcutta on 12.744 MHz — and DOA from the Federal Republic of Germany on 2.775 and 12.763 MHz.

From THE APRIL Letter May 23, 1986

# NOTICE LICENSING INTO THE 21ST CENTURY

## A Discussion Paper

G S Bracewell VK3XX

At the 1982 Federal Convention it was determined "at this time" that extension of Novice facilities was not an appropriate policy to pursue. However, it was moved at the 1986 Federal Convention that steps be taken to address Novice access to the VHF/UHF spectrum prior to or in conjunction with consideration of the direction of amateur radio into the 21st century. This motion was unanimously carried by the Federal Council.

Since 1982 there has been an "explosion" of interest in the community in micro-computing, and in the ranks of radio amateurs in particular. Typical applications being:

to aid design calculations in amateur projects to provide data base facilities for contests and logging

to calculate beam headings and distances for world-wide communications  
to track amateur and other satellites  
to enable the amateur to encode and decode high speed data communication.

It has been stated by Meers Linton and Harnson that the Amateur Service needs to attract younger participants and that computer hobbyists represent a potential target for recruitment. While it is the opinion of the writer that this potential has been overstated it is not denied that some potential does exist. Such people would see the opportunity to extend their world of "keyboard" communication via the public telephone network to communication by radio.

To exploit that potential it has been suggested in the same paper that an entry into amateur radio by way of a lower level of examination to those currently available be sought. Many members of the WIA have expressed views against lowering the technical standard of entry as "numbers" should not be the criterion on which the success or otherwise of the hobby is judged. With three levels of amateur licensing in Australia already the DOC principle of "let the user pay" has crept into the examination structure and is making it economically unattractive to young people to consider amateur radio as a hobby when home computing, for example incurs no cost beyond equipment and certainly no requirement for formal study and examination.

It is, therefore, postulated that the lowest entry into amateur radio should always be by way of the Novice licence. However, since its inception in the 1970s amateurs have felt strongly that there must always be an incentive to upgrade to either Limited or Unrestricted licences. Consequently, there has been reluctance to consider widening the scope of the facilities available to Novices.

Considering the wide technical scope of the Novice Examination syllabus, effectively examined at an appropriate level by the present range of multi-choice questions, there is relatively little to be perceived beyond the facilities available in the Citizens Band Radio Service. The CBRS already permits operation, without qualification by examination and at lower licence cost, using

AM and SSB on 27 MHz and FM on 470 MHz, including use of repeaters.

There may be pressure by the CBRS for DOC to authorise digital communications on 470 MHz once it is recognised that suitable equipment is commercially available. This would provide an alternate path for the computer hobbyist interested in digital communication by radio, to the detriment of amateur radio.

In giving consideration to reciprocal licensing with Japan, where a "no code" telephony licence exists, it is proceeding on the basis of offering a VHF only, 10 watt power licence to such a Japanese operator. With de-regulation of modes and bandwidths above 50 MHz one can assume that this licence will permit digital modes as well as telephony. This proposal is contrary to the wishes of many members of the WIA but is being

pursued by DOC on a limited time basis (12 months) as for the existing visitors' licences. It will therefore not be a true reciprocal licence for permanent or extended-stay residents of Japanese origin.

In view of these factors the WIA must now look toward seeking expansion of Novice facilities. Not every Novice wishes to, or is capable of, upgrading their licence. Operation within present mode and frequency limitations will eventually cause enthusiasm to fade and there could be a loss to amateur radio of those, who "having been there, done that" see little challenge available to them without further study and formal examination.

## PROPOSED EXTENSION OF NOVICE

Perhaps the time has come to open up the VHF/UHF amateur band spectrum to the Novice operators.

Currently, the syllabus is orientated toward CW, AM, and SSB operation and these are the only modes available to Novices. It is proposed that extension of privileges should involve the introduction of FM techniques into the syllabus at an appropriate level. Some may say this will make the Novice examination harder to pass and be a further hurdle to entering the ranks of the amateur service. Such a reaction is more likely to be emotional than significant.

Having introduced this additional technical topic, there is then justification for Novices to be allowed FM telephony and digital communication using AFSK, PSK and similar techniques. Examination in the associated digital technology and software is really no more appropriate than examination in speech. The Novice then requires space to practice the new found art and, except for RTTY at 4550 kHz, the 3.5 MHz band is certainly not the place.

The amateur service has many under-used megahertz at its disposal in the VHF and UHF spectrum. Much of this is covered by professional radio services. If it is to be retained by the amateur service it must be seen to be utilised. What better prospect of increasing the occupancy of those frequencies than opening them up to the Novices? It might even permit SSB contacts on 70 cm without having to make prior arrangements!

At present DOC are tending toward greater de-regulation of the amateur service, with particular reference to frequencies above 50 MHz. Consequently, it is now appropriate to assess their reaction to new Novice initiatives from the WIA.

## WHAT AND WHERE?

Assuming that consent to this proposal is received then we must decide what to seek from DOC in extended privileges for the Novice operator. Arriving at consensus is likely to be more difficult than getting agreement from DOC (or sorting out the tax situation).

One factor will involve little argument, namely authorised power. There is no justification for seeking power more than current Novice level on the HF bands.

Given the proposed addition to the Novice syllabus, there is no logical reason why all the emission modes allowed to Limited and Unrestricted licensees should not be allowed to Novices. There could be philosophical objections to pulse and television modes but in practice truly "novice" Novices are unlikely to become involved in the more "hi-tech" modes and yet not be sufficiently motivated to upgrade their licences.

Frequency allocation will probably provoke the most heated debate. We have been used to the principle that novices be given a limited frequency allocation in the MF and HF region. Agreement is unlikely that this should change, particularly on the 3.5 MHz band. The philosophy of a limited Novice segment being allocated to overlap the CW and telephony sections (as defined under earlier band planning) of the bands gave the opportunity for Novices to communicate with

Unrestricted licensees on both modes. However, band planning in the VHF/UHF spectrum precludes application of the same philosophy without more than one Novice allocation per band to take advantage of the wider range of transceiver modes which will then (hopefully) be available to the Novice operator.

There is, therefore, a strong incentive to open up the VHF/UHF bands in their entirety with perhaps a reservation in respect of 5-metres. Does this appear as heresy to the Limited and Unrestricted operators? It really should not, because the restriction to a mean power output of 10 watts does provide a clear distinction between the Novice and the higher grades.

In seeking to arrive at consensus one or two other factors need to be considered.

What about six metres where power restrictions, based upon geographical location, will apply to all operators in the 50-52 MHz region?

Is two metres too crowded to accommodate Novices?

What about 10 metres if FM is to be allowed to Novices and repeater operation is approved for this band?

Should Novices not have access to the Amateur satellites?

Because of limitations in the 50-52 MHz section of six metres it would seem inappropriate to propose allocation here at least until other usage permits amateurs throughout Australia to have the same privileges. A Novice allocation of 52.54 MHz would enhance activity on all appropriate modes in this section of the band according to the Australian Band Plan and would provide a transition ground between HF and VHF techniques for the novice interested in construction and experimentation.

Is the two metre band too crowded already? Maybe some of the repeaters are over-loaded but then some others are rarely used. Some of the dedicated simplex frequencies may seem to be well used but in reality, even in cities like Melbourne and Sydney there is much open space on two metres particularly at the low frequency end where there is virtually no CW activity except EME and relatively little on SSB. One thing which is quite apparent in Europe with the huge increase in VHF-only licences in recent years is the ability to observe band openings. We must be missing many DX opportunities due to the low level of activity in Australia, most being local FM communications.

So what about 10 metres? Is there any logic, reason why the Novice should have an upper frequency limit of 28.600 MHz? No debate is entered into in respect of 28.100 MHz and below. Even at times of the sunspot cycle when good propagation over long distances is possible on this band, there is still no real congestion above 28.600 MHz (at least there are not too many VKs there).

Is there any reason to believe that Novices will be any less gentlemanly than others in respecting the "please don't kick the dog's portion of this band"?

Given 10 metre FM repeaters why should Novices be denied their use? With the introduction of FM into the syllabus this could be a "shot in the arm" for 10 metres and help to justify efforts be made to introduce repeaters to this band either for in-band operation or for cross band "gateway" facilities.

At present the Novices are unable to access any of the amateur satellites. Even when one of the RS series goes into service with its uplink on 21 MHz (mode K) there is a distinct possibility that it will be outside the Novice allocation. Yet 10 watts on two metres is an ideal power level for satellite operation with the circular orbit satellites on the Mode A uplink.

## AND WHAT ELSE?

In the interest of making a licence slightly more

easily available to computer hobbyists what about a VHF only novice licence without the code test? This would not require any additional DOC cost for special examinations. Such a licence could perhaps be called a Limited Novice Operators Certificate (LNOCP).

The overall Australian licensing structure would then be:

|                                     |                                  |                       |
|-------------------------------------|----------------------------------|-----------------------|
| Full Power<br>120W Mean<br>400W PEP | Low Power<br>10W Mean 30W<br>PEP |                       |
| AACP<br>LAACP                       | NAACP<br>LNAACP                  | HF/VHF/UHF<br>VHF/UHF |

Since the principle of a "no-code" VHF licence already exists why not extend this to the novice at his power level?

### CONCLUSION

There can be no over-riding reasons for operators in the amateur service to reject the concept of Novice VHF/UHF operation. To do so would perpetuate low occupancy of the VHF/UHF spectrum and risk ultimate loss to professional interests. We may even be able to sustain a few VHF contests as in Europe — short term contests in contrast to the Ross Hull, which only satisfies the dedicated few with free time over the relevant period.

The proposals cannot be said to degrade the technical standards of the amateur service in Australia and yet they remove the daunting code test for a computer hobbyist who might otherwise attain the Limited Novice certificate.

In any case, as we are looking toward the 21st Century how long will CW survive? Will the newcomers continue the tradition notwithstanding it being the most effective mode of communication or will it wither and die with the present generation of amateurs?

What a misleading and anachronistic term is CW? Misleading because so called continuous wave is broken up into dots and dashes and anachronistic because who refers to a continuous wave in any other context today? It is a digital mode dependent upon the human mind for encoding and decoding intelligence which will ultimately be replaced by the computer generated digital modes which are almost as good for communication in marginal conditions but don't supply the oft expressed entry filter into amateur radio.

Let the WIA know your wishes for the future of the Novice licence.



**QSP**

### HOUSEKEEPING CRASHES

After nearly three years of on-orbit performance, AO-10 has suffered a serious, if not fatal, malfunction. The central computer, or Integrated Housekeeping Unit (IHU), experienced a major malfunction on May 17, when users began to notice some odd symptoms. The telemetry mode did not switch from PSK to RTTY or CW. Also, the Mode B transponder was locked on during a perigee passage. This put the satellite in a catatonic state.

It appears partial repairs can be made but longer-term prospects are somewhat more clouded.

Analysis of the fault is proceeding with experts from around the world considering the symptoms. Most are convinced the problem was caused by solar or cosmic radiation. The 16 k-memory chips are susceptible to the debilitating effects of exposure to radiation. The effects are cumulative so an overall degradation of the memory is suspected.

Karl Meinzer DJ4ZC, President of AMSAT-DL, a prime mover in the Phase 3 Project, says the current problem is survivable and there is a reasonable chance many functions can be restored.

Karl hastens to add that the current fault is the harbinger of a new class of problems AMSAT will be seeing more often. It is emblematic of the inevitable degradation of the memory.

Condensed from The ARRL Letter, June 6, 1986



## Thumbnail Sketches

Alan Shawsmith VK4SS

Queensland Historian  
35 Whynot Street, West End, Qld. 4101



HERBERT PETER CHRISTIAN LARSEN —  
OA/VK4JW (SK)

Records disclose that a nest of experimenters were active in the Charters Towers, Cairns and Townsville areas of north Queensland between the early and late 1920s. There were some seven or eight in total and only four of them appear to have been fully licensed at that time. One of the latter was the late Herbert Peter Christian Larsen OA4JW — and, from anecdotal stories received, he was something of a character.

Herb is remembered in the north as the instigator of the Nor'West Rock Crushers Club. Speculation as to the significance of this title remains to this day; one suggestion being that the club members were the first to use crystal controlled rigs, another that they had a common interest in mining. In its day Charters Towers was one of the richest gold mining towns in Queensland. In 1872, with a population of 31 000, it boasted 40 public houses (pubs!).

He had a reputation for enjoying an occasional glass of ale. In fact, it could be said that he had it permanently on tap, as he worked at the Charters Towers Brewery. Endowed with the call sign

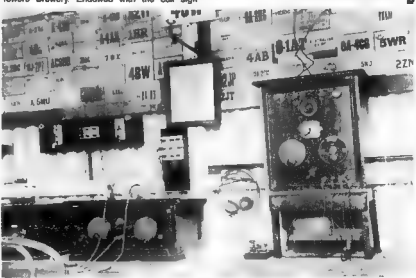
VK4JW, one wonders if he was ever dubbed "Four Johnnie Walker."

An extract from Herb's log, that has been carefully preserved for posterity, shows that he was one of the few amateurs to pick up the transmissions from Sir Charles Kingsford Smith's Southern Cross, on the last leg of its dramatic trans-Pacific flight in 1928. Herb's log (when still an SWL) verifies the claim of Tom Elliott 4CM, that "Smithy" experienced extremely bad weather and was in some difficulty because of it.

Herb obtained his AOC No 439, on September 25, 1928 and was licensed as OA4JW. The Townsville Amateur Radio Club advises that it is the oldest licence held in its records. The club also has extracts of his log, as well as photographs and other papers. VK4JW became a full member of the WIA in 1936.

One of the accompanying photographs shows Herb sitting at an extra large broadcast band receiver, so large that one wonders if it was a home-brewed unit. The other is a reproduction of his proper rig. Note the one tube transmitter, at right, standing above a hefty power supply.

Information and photographs supplied by Evelyn Bahr VK4EO, TARC Historian





# SUPER SPECIAL PRICES

CHECK AVAILABILITY — ONLY WHILE STOCKS LAST



- FT757GX inc mic \$1325
- FC700 Antenna Coupler \$270
- FV102DM ext VFO \$400
- FV700DM ext VFO \$395
- YS60 1.8-60 MHz \$128
- YS500 60-500 MHz \$105 PWR/SWR meters (reads PEP and AVGE)
- Handhelds all with FNB-4 NiCad
- FT203R \$312
- FT209RH \$375
- FT703R \$379
- FT709RH \$419

- FT290R all-mode \$499
- FT270R 25W \$550
- FT770R 25W \$699
- FT2700RH 2m/70cm 25W \$865
- FL2010 2m linear \$120
- FRG8800 HF \$900
- ~~FRG9600 VHF/UHF \$805~~ SOLD OUT
- FRV7700A, B, C, F VHF converters for FRG7700 \$99
- EK1501 Iambic Electronic Keyer \$225
- Yaesu Headphones YH55, YH77 \$24
- QTR24D Ham Clock \$52

Please call us for more specials on RECEIVERS, MICRO KEYERS, various accessories and spares for VACUUM EQUIPMENT



## BAIL ELECTRONIC SERVICES

38 FAITHFUL STREET, WANGARATTA 3677

Telephone: (057) 21 6260 — Telex 56880

Mail Orders, Mastercard, Visa and Bankcard Welcome.

**LEADER**

RECEIVERS

TELEX

Stan Roberts  
and Staff —  
VK3BSR

In the August **eti** among other things you'll find

**VIATEL:** what's in Telecom's new service for the users

**SHORTWAVE RADIO:** opening up worlds for the disabled

**SATELLITES:** launching the second generation

**REVIEWS:** Peter Williams on the ATS803 receiver  
Jon Fairall plays with Polar Instruments T1200  
Louis Challis tests KEF GT200 automotive speakers

**PROJECTS:** the modem is complete  
a parametric equaliser  
C64 function switches.





# Equipment Review

Ron Fisher VK30M  
3 Fairview Avenue, Glen Waverley, Vic. 3150

## KENPRO KT-220E TWO-METRE HAND-HELD TRANSCEIVER



Top View of the KT-220E.

held is somewhat down in power output. With a good quality external speaker connected, both the quality and output level were good.

Transmit audio was reported as very clean and clear quality Kenpro do offer an external speaker microphone as an option, but this was not available to test, however, again coincidentally, the Icom HM9 speaker/microphone worked very well with the Kenpro. I often get the impression that most Japanese manufacturers buy in many of their components from the same source. In other words, I do not think that Icom, Yaesu and Kenpro make their own brand of microphones. Stick a label on it and it turns into whatever brand is wanted.

A light is provided to illuminate the S-meter and LCD display. It works quite well for the meter but is useless for the display, just where it is needed most.

The keyboard buttons have a soft rubbery feel. I noted that at times one of them had a tendency to stick in and while this did not seem to effect operation, it might be interesting to see if this becomes a problem in the future. Also, the buttons are rather small. I found that they were better operated with the finger nail rather than the finger.

### UNDER TEST

Perhaps one of the more important tests with a battery powered hand-held transceiver is the current drain. I carried out two series of tests to check this, one with the normal 9.6 volt battery connected and the second using 13.8 volts from an external power supply. The results with the resultant RF power output were as follows:

|                         |                         |
|-------------------------|-------------------------|
| 9.6 volts power output  | (high) 3.5 watts 800 mA |
|                         | (low) 0.5 watts 350 mA  |
| 13.8 volts power output | (high) 5.0 watts 800 mA |
|                         | (low) 0.5 watts 360 mA  |

The power output figures are right on specifications. The current drain is fairly high for the 250 mAh battery so you would need to keep over fairly short. With 13.8 volts connected, a full five watts output is available, well within the ratings of a simple one amp power supply.

I next measured the battery drain on receive. With the receiver squelched and no audio output, the drain was 75 mA. At full audio output with no audible distortion, it was 180 mA. Again, it is a case of keep the volume as low as possible for extended battery life.

Power output and audio distortion was next checked. Feeding an eight ohm terminating audio watt meter, and a noise and distortion meter, the following results were noted. There was 10 percent distortion at 375 mW, 30 percent distortion at 450 mW.

This indicates that the total audio output is rather limited. At low volume, it sounds fine but if used in an average car at 80 to 90 km/h you might find it rather lacking. However, as mentioned

The side panel has the PTT bar, a button to activate the S-meter/LCD display illumination, a slide switch to lock the frequency control panel and a battery release button.

Frequency coverage is from 144 to 148 MHz in 5 kHz steps with an overlap at each end of the band. There are 10 memories which can be programmed with the required offset. Four scan modes are available, the first stops on a signal as determined by the centre zero detector, and then holds for 15 seconds before resuming scan.

The second mode stops on the first signal found and stays on that frequency. The third, like the first, stops but does not resume the scan until the transmission stops and the fourth is the memory scan which can be programmed to skip any of the selected memories not required at that time. A manual scan is also available with up/down buttons.

With the standard battery, power output is rated at 3.5 watts on high power selected, 0.5 watts on low power. Output can be increased to five watts using an external 13.2 volt supply which, as mentioned earlier, can be easily plugged into the top panel connector.

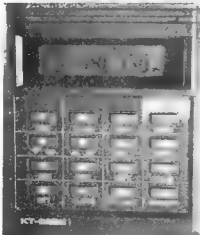
The KT-220E is supplied with a flexible stubby antenna, a belt clip, a wall plug-type battery charger, a selection of connector plugs, an earphone and instruction book.

### ON THE AIR

As with any keyboard controlled transceiver, the operation of the KT-220E takes a bit of practice. Most of the buttons have double functions with the secondary function becoming available through the 'X' or function button. In the manual mode, most required frequencies can be selected by entering one or two figures and then pressing the set button. For example, enter 65, press set and you are on 146.500 MHz. You can, of course, enter the frequency by dialling in each number in turn if you have plenty of time.

With the frequency and offset selected, it's just a matter of pressing the function 'X' button, the memory button 'D' and required memory channel number, eg 'W' and there you are. Be prepared to sit down for an hour or two to sort it all out. The instruction book is reasonably well written in this respect.

Received audio quality from the in-built speaker is good with a crisp sound, but like most hand-



Keypad.

The two-metre FM hand-held transceiver must be a popular market. Here is yet another one to complement the several already available through local outlets. Kenpro products have been available on the local scene for many years and they are well-known for antenna rotators and ancillary amateur equipment. I am not sure if Kenpro are related to the original Ken Company who produced the first two-metre hand-held, sold in this country many years ago, the famous KP-202.

The subject of this review, the KT-220E, is marketed in the USA under the Santic brand and is known as the ST-20T.

Well, let us look at the KT-220 in detail to see what it has to offer. It is a handy size, being just a little longer than the well-known Icom IC-2. The width and depth are about the same. The actual measurements are 18 x 4.5 x 6.5 cm (HWD). The weight is 550 grams compared with 525 grams for the IC-2.

It is interesting to note that the battery pack of the Kenpro is inter-changeable with the Icom, although the standard battery supplied with the KT-220E is a 9.6 volt unit as against the smaller 8.4 volt IC-2 power pack.

The Kenpro has all the features of the opposition plus a few more. Frequency selection is via a 16 button keypad. A LCD readout displays transmit and receive frequency, memory or non-memory operation, scan stop mode, repeater offset and a clock. The top control panel has audio volume/power on/off, squelch, external microphone speaker output, high/low power selector, external 13.2 volt power input socket and the indispensable adjunct for the enthusiastic two-metre operator, an S-meter.



earlier, an external speaker can make a big difference.

Receiver sensitivity was checked. At 25  $\mu$ V the SINAD was 12 dB and at .1  $\mu$ V it measured 6 dB. The 25  $\mu$ V figure is right on specifications. The S-meter is naturally rather small. It is calibrated with nine divisions presumably for nine S-points and labelled 1, 3, 5, 7 and 10, which I guess means S9 + 10 dB. Whatever, the following results were noted.

|           |           |           |            |            |                   |
|-----------|-----------|-----------|------------|------------|-------------------|
| S1        | S3        | S5        | S7         | S9         | S9                |
| 5 $\mu$ V | 7 $\mu$ V | 8 $\mu$ V | 10 $\mu$ V | 40 $\mu$ V | Not reach-<br>ing |

The meter would not go beyond S8, regardless of the signal input. However, it is better than nothing.

On transmit, the meter becomes a volt meter. At the junction of the red and green section on the scale, it is exactly 9.6 volts with 13.8 volts indicated at the start of the red 10 on the S-meter scale. The receiver front end performance appeared to be quite good for a hand-held. While receiving a weak signal of around 5  $\mu$ V, I injected a strong signal 50 kHz away. It required an input of 10 mV to degrade the signal-to-noise ratio by 2 dB on the wanted signal.

All in all, these figures are very reasonable for a two-metre hand-held transceiver. The only point of criticism is the low receive audio output, but even that is not too bad.

#### INSTRUCTION BOOK

The book runs to 26 pages. It is well written and contains a lot of useful information. The circuit diagram is spread over four pages while printed

circuit layouts cover another four. A page of trouble shooting hints mainly cover operating problems.

The actual operating instructions are good. Flow charts show how the various functions are programmed.

Thanks to Emtronics of Sydney and Melbourne for the loan of the review transceiver. Further inquiries should be directed to them or refer to their current advertisement in *Amateur Radio* magazine.

#### EVALUATION AND ON-AIR TEST AT A GLANCE

##### APPEARANCE

###### Packaging

\*\*\* Strong carton with foam inserts.

###### Size

\*\*\* Not the smallest full featured HT, but very good.

###### Weight

\*\*\* Again not the lightest, but very good.

###### External Finish

\*\*\* Very clean and presentable finish.

###### Construction Quality

\*\*\* Good internal wiring and construction.

##### PANEL CONTROLS

###### Location of Controls

\*\*\* Key-pad and top panel controls well located.

###### Size of Knobs

\*\* For a hand-held, quite large. Keyboard buttons rather small.

###### Status Indicators

\*\*\* All built into the LCD readout. Transmit, receive, offset, memory, scan, battery alarm.

#### S-METER AND DISPLAY ELIMINATION

\* S-meter clearly lit but very little gets to LCD display.

#### RECEIVER OPERATION

##### Memories

\*\*\* Ten memories with repeater offset included

##### S-Meter

\*\* Better than nothing. (See test section).

##### Sensitivity

\*\*\* As good as most other hand-helds.

##### Signal Handling

\*\*\* Better than most hand-held transceivers.

##### Internal Speaker

\*\* Clear distinct quality but output limited

#### TRANSMIT OPERATION

##### Power Output

\*\*\* Very good output for most applications

##### Battery Drain

\*\* Keep your overs short.

##### Audio Quality

\*\*\* Crisp clean audio.

##### Metering

\*\* Indicates battery voltage only. No output indication

#### MANUAL

##### Owners Hand Book

\*\* Clear adequate instructions. Circuit and board layouts.

#### OVERALL RATINGS

\*\*\* If you need a hand-held, this one is worth looking at.

Rating Code: \* Poor; \*\* Satisfactory; \*\*\* Very Good; \*\*\*\* Excellent.

ar

## MORSE CODE TONE CONVERTER

P J Grigg VK3APG

Lot 441 Glenburn Street, Newcomb, Vic. 3219

This device varies the tone of Morse code from tape or record to suit ones own individual taste.

Also when the play-back speed is varied, the tone remains the same.

A key facility has been included for sending practice Morse

Rb is selected with no signal input so that Q1 Vc is about 90 mV. This allows for a wide range of input signal level to be handled.

Connect the input of this device to the speaker output of a tape recorder or record player whose volume-control can be set at any point above the threshold of operation.

The unit was constructed on Vero-board and placed in a small wooden box with a sloping metal front panel.

ar

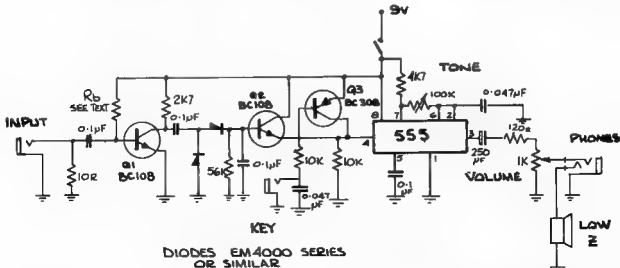


Figure 1 — Morse Code Tone Converter.

# **KENWOOD'S 25th anniversary** celebrated in **VICTORIA!** **TO MARK THIS SPECIAL SILVER** **ANNIVERSARY**

## **EMTRONICS (Vic)**

**AT 288-294 QUEEN ST. (entrance from Lt. Lonsdale St)**  
**MELBOURNE Ph. (03) 678551 or 678131**

**IS STAGING A SPECIAL**

# **KENWOOD EXHIBITION**

**FROM MON JULY 14 TO END OF AUGUST, WHERE ALL KENWOOD**  
**PRODUCTS WILL BE SOLD AT SPECIALLY REDUCED PRICES —**  
**NEVER TO BE REPEATED!**

**TS-940** The ultimate HF rig complete with PS Auto Tuner + \$25 Headphones bonus — **SAVE \$225** **\$2775**

**TS-440** The new ultimate Mobile HF rig with Auto Tuner, MIC and \$25 Headphones — **SAVE \$125** **\$1485**

**TL-922** 2Kw Linear Amplifier with 2x3 500Z Tubes. **SAVE \$299.** Why Pay More? **\$1999**

**TM2570** Full 70watts output — latest most sophisticated 2M FM transceiver — no linear needed — **SAVE \$35** Plus the cost of linear \$250 **\$659**

**TH21** World's smallest Ultra Compact 2M Hand Held 1W RF Out — High performance low price **SAVE \$26** **\$299**

**TH41A** World's smallest Ultra Compact 70cm Hand Held 1W RF Out — High performance — low price **SAVE \$38** **\$299**

**TM411** The Mini Mobile. 25 watts 2M Rig. 5 memo tilting front panel **SAVE \$40** **\$559**

**PS50** The new Station Power Supply. 20A at 13.8V **SAVE \$28** **\$339**

# **COME AND SEE KENWOOD IN FULL** **COLOUR AND OPERATION**

**ICOM**

**STOCK CLEARANCE  
SALE**

**ALL STOCK  
TO CLEAR  
AT COST!**

**ONLY WHILE STOCKS LAST**

## KDK-FM 240

**HAS BEATEN THE DOLLAR**

With spectacular mobile simplicity this unique 2m FM radio is a piece sure to own  
Write for colour brochure

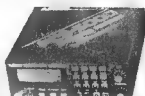


**Only \$549**

## NEW!! PCS-5000

**THE BRILLIANT NEW  
PCS-5000 2-METER  
FM TRANSCEIVER!  
C-MOS TECHNOLOGY  
AT ITS FINEST!**

The Azden PCS-5000 features an unprecedented wide frequency cover age, 20 channels of memory two separate memory banks with separate or simultaneous scanning two ranges of programmable band scanning up to 11 non standard offsets built in PL tone generator, and much more



**ONLY  
\$599**

## TONO THETA 5000 E



The top of the line communication terminal for amateur and professional applications, it opens the world of CW, RTTY and new dual Amort

THETA 5000E is the new state of the art micro computer controlled communication machine Write for specs

**\$1595**

BANKCARD, VISA, MASTERCARD WELCOME

## TONO THETA-777



Everything Built In Including Software Nothing Else To Buy

RTTY, BIT INVERSION (RTTY), ASCII, AMTOR MODE A (ARQ), MODE S (PEC AND SEL PEC), MODE CW, ANY SPEED ANY SHIFT (ASCII AND SAUCOTI)

**\$699**

- AUTO DECODING: Automatically decodes night and day mode speed and polarity of the CRT
- Use with any computer that has RS232 C (115200)

- The awesome power of the Theta 777 is limited only by the imagination of the user and the terminal program of the computer

## INTRODUCING RADIO FAX

The **FXR-550** decodes fax similar transmissions such as weather maps, weather forecasts, marine forecasts and sea ice forecasts available through public, business broadcasts. The **FXR-550** provides outputs for monochrome or RGB monitors and a dot matrix printer. Sync speed is set automatically by provided sensor. The satellite picture will be displayed in 8 shades of monochrome. Audio monitor circuit is built in.



**\$799**

## Two New CODE CONVERTERS from TELEREADER

Now you can monitor an short wave services and transmission codes such as CW RTTY ASCII AMTOR and SSB. All you need is a good communication receiver from EMTRONIX S and the whole world of exciting signals is at your fingertips  
LWR 880 with vertical front panel  
LWR 670 with sloping front panel

**\$899  
\$899**



|                           |       |
|---------------------------|-------|
| <b>DAIWA</b>              |       |
| CS 401 4 pos coax switch  | \$110 |
| CS 4 4 pos coax switch    | \$49  |
| CS 401G 4 pos coax switch | \$139 |
| CS 201G 2 pos coax switch | \$39  |
| CA-620A SWR Power meter   | \$189 |
| CM 520 SWR Power meter    | \$99  |
| CM 540 SWR Power meter    | \$99  |
| CN 410M SWR Power meter   | \$110 |
| CN 450M SWR Power meter   | \$110 |

## POWER SUPPLIES

|                                |       |
|--------------------------------|-------|
| Alenco EP 3030 30A (25A Cont)  | \$549 |
| Alenco EP 2510 30A (25A Cont)  | \$359 |
| Alenco EP 3010 30A (25A Cont)  | \$459 |
| Alenco EP 1510 20A (15A Cont)  | \$289 |
| Alenco EP 570 6.5A (5.5A Cont) | \$179 |
| Daiwa PS 310M 31A (25A Cont)   | \$489 |
| Daiwa PS 120M 12A (10A Cont)   | \$249 |

## WELTZ

|                               |          |
|-------------------------------|----------|
| SP 650 SWR/P 1.6 50K MHz      | \$259    |
| SP 225 SWR/P 1.8 200 MHz      | \$149    |
| SP 220 SWR/P 1.8 200 MHz      | \$99     |
| SP 172 SWR/P 1.6 60 MHz       | \$159    |
| SP 425 SWR/P 140 325 MHz      | \$129    |
| SP 420 SWR/P 140 325 MHz      | \$129    |
| SP 350 SWR/P 1.8 500 MHz      | \$159    |
| SP 250 SWR/P 1.6 400 MHz      | \$99     |
| SP 45M SWR/P 140-470 MHz      | \$29/149 |
| CT 15AAN SOW Dummy Loads      | \$190    |
| CT 200 2.5 GHz Dummy Loads    | \$120    |
| CT 300 250 MHz Dummy Loads    | \$49/299 |
| CM 200AAN Coax Switches       | \$79     |
| DF 124 144 430 MHz Duplexer   | \$189    |
| TP-055 50 144-430 MHz P Meter | \$18     |

CC 50M 100-1300 MHz Coax Coupler: TBA

## ANTENNAS

|   |       |
|---|-------|
| 4m Barch  | \$99  |
| 3 & 4 Band 7' up Dove   | \$99  |
| 5 Band delta 4'   | \$139 |
| <b>ANTENNA WIRE</b> — MULTISTRAND HEAVY DUTY COPPER WIRE — 50 75m   |       |
| <b>PORCELAIN ANTENNA INSULATORS</b> For:                            |       |
| Super large Egg for loop-loop wire — Rhombics & Guide Wires — \$280 |       |
| 450 OHM OPEN FEED   | \$190 |
| one in stock \$150/m  | \$120 |
| <b>CONX. SAKON HUL. SPECS</b>                                       |       |
| RG 213 in stock 33.50/m   | \$79  |
| <b>8 CORE HEAVY DUTY ROTATOR</b>                                    |       |
| Cap = \$250 m   | \$18  |

## RF POWER AMPLIFIERS

|                            |  |
|----------------------------|--|
| HI 120U 70cm 100W GAAS FET |  |
| HI 60U 70cm 60W GAAS FET   |  |
| HI 725U 2m/70cm            |  |
| HI 160V25 160W 2m          |  |
| HI 85 85W GAAS FET 2m      |  |
| HI 66V 6m 60W              |  |
| LA 215SE 2m 150W           |  |

## ANTENNA ROTATORS

Full Range of Kenpro, Create, Emulator & Daiwa  
Aust Largest Range

## ATTENTION ALL JRC OWNERS —

If you have an MRD 515 receiver — Grab our below cost memory modules at \$150!

## JULY SPECIALS

**Kantronics**  
**UNIVERSAL TERMINAL**  
**UNIT AND INTERFACE II**

The Interface for VIC 20 and Commodore 64, Apple, Atari  
TI-99/4A, TRS-80C  
Computers \$569 \$390

● **HAL CT 2208 & KB2100**  
Interested in CW-RTTY-HSC11 mode of communications? This RX/TX HAL system is all you'll ever need Write for more Tech, Info Reg Price \$4790 Special \$1190

**NSW STORE & HEAD OFFICE:**  
99-100 Wentworth Ave, Sydney, NSW.

**PH: 011 0000 TEL: 01 7899**  
**EMOLEC**

**VICSTORE:**  
988-994 Queen St, Melbourne, Vic.  
3000

Entrance from Little Lonsdale St  
Ph: (03) 67 8811 or 67 8111

Communications & Mail Orders: See EET, Melbourne, VIC 3000



**EMTRONICS**



**AMSAT  
Australia**

**AMSAT Australia**

Colin Hurst VK5HI  
8 Arndell Road, Salisbury Park, SA. 5109

**OSCAR 10 APOGEE  
AUGUST 1978**

| DAY  | ORBIT # | APOGEE ALT. T.C. (H:M:S) | SATELLITE CO-ORDINATES AT LCN DEG | BEAM HEADINGS-- |        |        |        |        |        |        |        | PERTH  |        |
|------|---------|--------------------------|-----------------------------------|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|      |         |                          |                                   | AZ DEG          | EL DEG | AZ DEG | EL DEG | AZ DEG | EL DEG | AZ DEG | EL DEG | AZ DEG | EL DEG |
| 0th  | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 212  | 2355    | 1042:41                  | -17                               | 207             | 7      | 72     | 12     | 67     |        | 78     | 49     |        |        |
| 1st  | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 213  | 2357    | 1001:57                  | -19                               | 170             | 14     | 76     | 59     | 60     |        | 95     | 46     |        |        |
| 2nd  | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 214  | 2359    | 1720:42                  | -17                               | 17              | 56     | 63     | 71     | 52     |        | 98     | 32     |        |        |
| 3rd  | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 215  | 2401    | 1639:51                  | -19                               | 179             | 68     | 55     | 79     | 43     |        | 95     | 23     |        |        |
| 4th  | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 216  | 2363    | 1550:52                  | -19                               | 170             | 77     | 47     | 85     | 35     |        | 99     | 15     |        |        |
| 5th  | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 217  | 2365    | 1511:54                  | -19                               | 161             | 94     | 38     | 93     | 27     |        | 103    | 7      |        |        |
| 6th  | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 218  | 2366    | 1425:26                  | -19                               | 160             |        |        |        |        |        | 253    | -8     |        |        |
| 219  | 2367    | 1436:57                  | -19                               | 161             | 39     | 29     | 90     | 16     |        | 196    | -1     |        |        |
| 7th  | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 219  | 2369    | 0216:22                  | -17                               | 120             |        |        |        |        |        | 257    | 8      |        |        |
| 219  | 2369    | 1756:02                  | -17                               | 170             |        | 41     | 100    | 10     |        |        |        |        |        |
| 8th  | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 220  | 2370    | 1755:11                  | -17                               | 170             |        |        |        | 111    | 3      | 204    | 10     |        |        |
| 220  | 2371    | 1755:12                  | -17                               | 170             |        |        |        | 107    |        |        |        |        |        |
| 9th  | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 221  | 2371    | 1755:12                  | -17                               | 170             |        |        |        | 106    | 5      | 207    | 24     |        |        |
| 221  | 2373    | 1734:05                  | -19                               | 142             | 44     | 5      |        |        |        |        |        |        |        |
| 10th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 222  | 2374    | 0913:16                  | -19                               | 250             | 155    | 2      | 201    | 13     |        | 272    | 52     |        |        |
| 222  | 2375    | 1153:07                  | -19                               | 144             | 166    | 5      |        |        |        |        |        |        |        |
| 222  | 2376    | 2352:19                  | -19                               | 251             | 137    | 10     | 206    | 26     |        | 277    | 41     |        |        |
| 11th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 223  | 2376    | 2251:14                  | -19                               | 220             | 264    | 15     | 212    | 29     |        | 284    | 50     |        |        |
| 12th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 224  | 2379    | 2210:44                  | -17                               | 270             | 265    | 20     | 213    | 37     |        | 294    | 58     |        |        |
| 13th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 225  | 2382    | 2129:46                  | -19                               | 261             | 275    | 34     | 225    | 45     |        | 300    | 60     |        |        |
| 14th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 226  | 2384    | 2040:40                  | -19                               | 231             | 261    | 43     | 234    | 54     |        | 333    | 72     |        |        |
| 15th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 227  | 2385    | 2007:52                  | -19                               | 242             | 239    | 50     | 307    | 61     |        | 9      | 74     |        |        |
| 16th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 228  | 2387    | 1927:52                  | -19                               | 210             | 301    | 59     | 320    | 67     |        | 48     | 78     |        |        |
| 17th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 229  | 2390    | 1847:15                  | -19                               | 200             | 300    | 60     | 354    | 70     |        | 59     | 83     |        |        |
| 18th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 230  | 2391    | 1750:11                  | -17                               | 270             |        |        |        | 67     |        | 16     | 54     |        |        |
| 19th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 231  | 2394    | 1724:11                  | -17                               | 270             |        |        |        | 62     | 0      | 75     |        |        |        |
| 20th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 232  | 2395    | 1643:11                  | -17                               | 270             |        |        |        | 50     | 30     | 54     | 37     |        |        |
| 21st | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 233  | 2396    | 1602:08                  | -19                               | 210             | 28     |        |        | 40     | 70     | 28     |        |        |        |
| 22nd | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 234  | 2400    | 1521:08                  | -17                               | 270             | 07     |        |        | 70     | -4     | 19     |        |        |        |
| 23rd | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 235  | 2402    | 1440:11                  | -17                               | 270             | 43     | 25     |        | 11     | 99     | 11     |        |        |        |
| 24th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 236  | 2404    | 1359:10                  | -17                               | 270             | 84     | 34     | 70     | 24     | 103    | 3      |        |        |        |
| 25th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 237  | 2405    | 0150:45                  | -17                               | 270             |        |        |        |        | 256    | 1      |        |        |        |
| 237  | 2406    | 1219:16                  | -17                               | 143             | 57     | 20     | 76     |        |        |        |        |        |        |
| 26th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 238  | 2407    | 0057:47                  | -17                               | 222             |        |        |        |        |        |        |        |        |        |
| 239  | 2408    | 1227:10                  | -17                               | 129             | 94     | 18     | 182    | 7      |        | 260    | 9      |        |        |
| 27th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 239  | 2409    | 0854:00                  | -17                               | 314             |        |        | 254    | -1     | 265    | 17     |        |        |        |
| 239  | 2410    | 1156:21                  | -17                               | 129             | 97     | 7      | 105    | -1     |        |        |        |        |        |
| 239  | 2411    | 2335:52                  | -17                               | 205             |        |        | 259    | 0      | 270    | 26     |        |        |        |
| 28th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 240  | 2412    | 1115:24                  | -17                               | 120             | 94     | 1      |        |        |        |        |        |        |        |
| 240  | 2413    | 2754:54                  | -17                               | 145             | 130    | 0      | 204    | 14     | 275    | 34     |        |        |        |
| 29th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 241  | 2414    | 2211:15                  | -17                               | 150             | 104    | 14     | 210    | 22     | 284    | 43     |        |        |        |
| 30th | August  |                          |                                   |                 |        |        |        |        |        |        |        |        |        |
| 242  | 2417    | 2132:50                  | -17                               | 272             | 267    | 17     | 275    | 60     | 290    | 52     |        |        |        |

**NATIONAL CO-ORDINATOR**

Graham Ratcliff VK5AGR  
**INFORMATION NETS**  
**AMSAT JAPANESE**  
 Control: VK5AGR  
 Amateur Check-In 0945 UTC Sunday  
 Bulletin Commences 1000 UTC  
 Winter 3.685 MHz Summer 7.064 MHz  
**AMSAT ITALIAN**  
 Control: JAIANG  
 1100 UTC Sunday  
 14.305 MHz  
**AMSAT SW PACIFIC**  
 2200 UTC Saturday  
 21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data, including Keplerian elements from the AMSAT Australia Net. This information is also included in some WIA Divisional Broadcasts.

**ACKNOWLEDGMENTS**

Contributions this month are from Graham VK5AGR, Keith Wilkinson ZL2BJRW, Jim Miller G3RUH and Bob VK5BB.

**OSCAR-10 OPERATING HICCUP**

Operators of OSCAR-10 will be well aware of the operating anomalies that were being experienced with the spacecraft's management system and on-board computer. The first sign of real trouble occurred on May 17, 1966 when it was noted that the PSK telemetry had become "corrupted".

For some months past, there has been increasing concern at the number of software errors being experienced by the on-board computer, even more significant, the known number of deleted RAM locations in memory.

For those with good memories you may well recall the events following the extended burn of the OSCAR-10 kick-motor, which placed OSCAR-10 in an orbit with an approximate 3600 km Perigee against a projected 1500 km value. I well remember reading the concerns being expressed at the time as to what effect the bursts of radio radiation within the unplanned perigee of 3600 km would have on the spacecraft RAM memory. I trust that the damage caused at this time will not be terminal to the spacecraft's computing system, however, only the extensive evaluation currently being carried out by the ground control stations will provide the answer that is eagerly being awaited by communications operators all over the world. At this stage, no precise results have been deduced, however, in next month's column, we may be able to provide a more precise assessment of the situation.

**OSCAR-10 APOGEE**

Due to the nature that the computer program is written to derive the apogee data for this column, there does occur from time to time, a day labelled August 0th or September 0th.

This month is no exception with the anomaly occurring twice. Please do not despair, they are simply another way of printing July 31 and August 31. I am aware of the hiccup in my routine and always intend to correct it, however spare time is a commodity I have been extremely short of in recent months. Next time?

**SMOOTHED KEPLERIAN ELEMENTS**

The following short article from Jim Miller G3RUH, is commended for your action. The emphasis is quoted for OSCAR-10 are those to be up-loaded to the spacecraft and used for the next six-monthly period. The Apogees provided in this column are now generated using Jim's smoothed elements sets.

**OSCAR-10 SMOOTHED KEPLERIAN ELEMENTS**

by Jim Miller G3RUH  
 It is not widely appreciated that these Keplerian Elements helpfully provided by NASA (Argument of Perigee 123.455789 degrees, etc, etc), are not

# OSCAR-10 APOGEE SEPTEMBER 1986

| DAY  | ORBIT     | APOGEE<br>U.T.C<br>HH:MM:SS | SATELLITE<br>COORDINATES |             | SYDNEY    |           | ADELAIDE  |           | PERTH     |           |
|------|-----------|-----------------------------|--------------------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|
|      |           |                             | LAT<br>DEG               | LONG<br>DEG | AZ<br>DEG | EL<br>DEG | AZ<br>DEG | EL<br>DEG | AZ<br>DEG | EL<br>DEG |
| 0th  | September |                             |                          |             |           |           |           |           |           |           |
| 243  | 2419      | 2052:01                     | -17                      | 267         | 273       | 28        | 282       | 39        | 381       | 68        |
| 1st  | September |                             |                          |             |           |           |           |           |           |           |
| 244  | 2421      | 2011:04                     | -17                      | 270         | 279       | 36        | 298       | 47        | 318       | 67        |
| 2nd  | September |                             |                          |             |           |           |           |           |           |           |
| 245  | 2423      | 1938:07                     | -17                      | 248         | 286       | 44        | 308       | 55        | 345       | 71        |
| 3rd  | September |                             |                          |             |           |           |           |           |           |           |
| 246  | 2425      | 1849:09                     | -17                      | 239         | 295       | 52        | 315       | 62        | 18        | 71        |
| 4th  | September |                             |                          |             |           |           |           |           |           |           |
| 247  | 2427      | 1800:12                     | -16                      | 238         | 308       | 68        | 336       | 67        | 44        | 66        |
| 5th  | September |                             |                          |             |           |           |           |           |           |           |
| 248  | 2429      | 1727:14                     | -16                      | 226         | 327       | 64        | 3         | 68        | 68        | 59        |
| 6th  | September |                             |                          |             |           |           |           |           |           |           |
| 249  | 2431      | 1646:17                     | -16                      | 211         | 353       | 69        | 38        | 66        | 78        | 58        |
| 7th  | September |                             |                          |             |           |           |           |           |           |           |
| 250  | 2433      | 1605:19                     | -16                      | 202         | 22        | 68        | 49        | 68        | 78        | 42        |
| 8th  | September |                             |                          |             |           |           |           |           |           |           |
| 251  | 2435      | 1524:22                     | -16                      | 192         | 44        | 63        | 62        | 53        | 84        | 33        |
| 9th  | September |                             |                          |             |           |           |           |           |           |           |
| 252  | 2437      | 1443:23                     | -16                      | 189         | 59        | 56        | 71        | 44        | 89        | 24        |
| 10th | September |                             |                          |             |           |           |           |           |           |           |
| 253  | 2439      | 1402:26                     | -16                      | 178         | 69        | 48        | 79        | 36        | 94        | 16        |
| 11th | September |                             |                          |             |           |           |           |           |           |           |
| 254  | 2441      | 1321:28                     | -16                      | 164         | 77        | 39        | 85        | 28        | 99        | 8         |
| 12th | September |                             |                          |             |           |           |           |           |           |           |
| 255  | 2443      | 1240:31                     | -16                      | 153         | 88        | 31        | 98        | 28        | 103       | -8        |
| 13th | September |                             |                          |             |           |           |           |           |           |           |
| 256  | 2444      | 0828:02                     | -16                      | 338         |           |           |           |           | 259       | 8         |
| 256  | 2445      | 1159:34                     | -16                      | 145         | 69        | 22        | 93        | 11        |           |           |
| 256  | 2446      | 2339:05                     | -16                      | 321         |           |           |           |           | 263       | 11        |
| 14th | September |                             |                          |             |           |           |           |           |           |           |
| 257  | 2447      | 1118:36                     | -15                      | 136         | 94        | 14        | 108       | 4         |           |           |

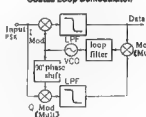
From Keith ZL2BJRJA, we have an update on the demodulator circuit published in the June/July issues of this column. I also understand that Jim Miller G3RUH, is also preparing a suitable demodulator for this spacecraft along the lines of his now renowned OSCAR-10 PSK Demodulator.

However, from Keith, we have the latest JA offering and for those persons interested, a PCB Pattern and Board layout is included in the JARL CQ 1986 Issue No 6 Magazine.

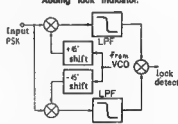
## JAS-1 PSK DEMODULATOR REVAMPED

The earlier-described PSK demodulator "AF-DEMO2" was developed for receiving OSCAR telemetry. The circuit was simple, but the lock range was only  $\pm 100$  Hz — adequate for a satellite like OSCAR-10 which is in a high orbit, but not very satisfactory for JAS-1 (because Doppler shift is relatively large). The "AF-DEMO2" circuit described below uses a Costas loop PLL with lock range of  $\pm 200$  Hz, and has "locked," input frequency low ("up") and high ("down") outputs which can be used to automatically correct the transceiver frequency ("up"/"down" outputs occur when the input frequency shifts about 100 Hz from 1600 Hz). A level meter can also be added. The VCO runs at 12.8 kHz, and is divided by eight, a shift register (74C164) gives the desired phase shifts. One adjustment is required: short JP, so U9 operates as a voltage follower and its output

## Costas Loop Demodulator.



## Adding "lock" Indicator.



quite as accurate as they appear. All those decimal places create a false sense of security.

The Keplerian Elements of 1000s of space objects are derived from frequent radar range and range-rate measurements, and are self-consistent to facilitate tracking for a very short time — a few days or so.

But satellites like OSCAR-10 are in nice stable orbits, so the elements appear to hold well for quite a while. However, when you take a close look at successive sets of Keplerian Elements, you get quite a surprise.

Take Argument of Perigee; for OSCAR-10 we expect this to change slowly at an average rate of around 0.5 degrees per day — which indeed it does. But carefully plot a graph of Argument of Perigee against time and you will see the points jitter around the steady slope with a variation of some 0.2 degrees RMS. Individual points may be off-slope by as much as 0.5 degrees. So much for all those decimal places!

You can do the same exercise with RAAN, and the other quantity which changes continuously, Mean Anomaly. Steady parameters Inclination, Eccentricity and Semi-Major Axis can simply be averaged. By plotting the graphs — or doing the equivalent manipulation by computer program you can reveal a *Smoothed Ephemeris* which has real accuracy and long term utility.

So, based on Keplerian Element sets from May 1985 to May 1986, here is a set which I promise you will find workable for that period and all of 1986. They are the elements as used by the command stations, and are flying in AO-10.

Decay Rate 0 input day/day Q = -0.1611

Epoch Rev 2201 V = 0.2698  
Semi-major Axis 28106.3 km A = 4.09293

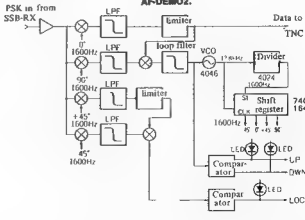
RA of Node changes at a rate of -0.1611 deg/day, and Argument of Perigee at a rate of 0.2696 deg/day.

Accuracy: the RMS (1 sigma) uncertainties are: epoch time 7 seconds; RAAN and Arg Perigee 0.08 deg; mean motion, and rates of change of RAAN/ARG Perigee 0.0003 deg/day.  
de G3RUH, May 20, 1986.

## JAS-1 SPACECRAFT

At the time of preparation of this column, JAS-1 was scheduled for launch on July 31, 1986 at 2030 UTC.

## AF-DEMO2.



| Object         | OSCAR-10   | SHAPE<br>PC12455/8/7<br>[1000]  |
|----------------|------------|---|
| Epoch Year     | 1986       |   |
| Epoch Time     | 137 726023 | days  |
| Inclination    | 28.3       | deg   |
| RA of Node     | 79.8268    | deg   |
| Eccentricity   | 0.6        | —   |
| Arg of Perigee | 111.2718   | deg   |
| Mean Anomaly   | 0.0        | deg   |
| Mean Motion    | 2 05655275 | new<br>rev day  |
|                |            | G = 3058.726823<br>I = 28.3<br>O = 79.8268<br>E = 0.6<br>W = 111.2718<br>F = 380.962647<br>N = 12.9342684 |





# VHF UHF

## — an expanding world

Eric Jamieson VK5LP  
1 Quilans Road, Forrester, SA 5233

20 times as Universal Co different Time and International UTC

### AMATEUR BANDS BEACONS

| FREQUENCY | CALL SIGN | LOCATION                |
|-----------|-----------|-------------------------|
| 50.010    | JAZ6YJ    | Mile                    |
| 50.020    | JAS7BR    | Japan                   |
| 50.050    | KH6QJ     | Honolulu                |
| 50.075    | V88JJ     | Hong Kong               |
| 60.108    | D11VAA    | Nile                    |
| 62.013    | P28BPL    | Loisels Island          |
| 62.020    | FK8AB     | Noumea                  |
| 62.100    | ZK3BX     | Alue                    |
| 52.160    | VK0SJ     | Macquarie Island (Kaye) |
| 52.200    | VK8VF     | Darwin                  |
| 52.250    | ZL2VHM    | Menawatu                |
| 52.310    | ZL3NVF    | Harris                  |
| 52.320    | VK8RT     | Port Samson (Karratha)  |
| 52.326    | VK2RHU    | Newcastle               |
| 52.380    | VK8RTU    | Kalgoorlie              |
| 52.370    | VK7BSY    | Hobart                  |
| 52.420    | VK2RB     | Sydney                  |
| 52.426    | VK2RQB    | Gunnah                  |
| 52.440    | VK4RTL    | Townsville              |
| 52.450    | VK8VF     | Mount Lofy              |
| 52.460    | VK6PR     | Albany                  |
| 52.468    | VK8RTU    | Albany                  |
| 52.470    | VK7RNT    | Launceston              |
| 52.488    | VK8RA5    | Allice Springs          |
| 144.011   | VK8RA5    | Busselton               |
| 144.000   | VK4RT     | Mount Melbourne         |
| 144.410   | VK1RCC    | Canberra                |
| 144.420   | VK2RBY    | Sydney                  |
| 144.430   | VK3RTG    | Glen Waverley           |
| 144.430   | VK8RTU    | Albany                  |
| 144.480   | VK8VF     | Darwin                  |
| 144.488   | VK8RA5    | Allice Springs          |
| 144.550   | VK8RSB    | Mount Gambier           |
| 144.560   | VK6PR     | Port Hedland            |
| 144.600   | VK8RTT    | Port Samson (Karratha)  |
| 144.500   | VK8VF     | Mount Lofy              |
| 144.880   | VK2RCW    | Sydney                  |
| 144.900   | VK8RTU    | Perth                   |
| 432.057   | VK8RSB    | Busselton               |
| 432.160   | VK6PR     | Nedlands                |
| 432.180   | VK8RTT    | Port Samson (Karratha)  |
| 432.120   | VK2RBY    | Sydney                  |
| 432.480   | VK8RSB    | Busselton               |
| 1286.171  | VK6PR     | Busselton               |
| 1286.420  | VK8RSB    | Sydney                  |
| 1286.480  | VK6PR     | Nedlands                |
| 10300.000 | VK6RSB    | Rotterdam               |

1. From the pages of the West Australian VHF Group Bulletin for May 1986 comes a complete listing of all their operating beacons and included is VK8RTU, at Kalgoorlie. This was removed from the above list some time ago as no one could confirm that it was operating.

2. Gili VK3AUJ, confirms the VK3RTG beacon is operating from Glen Waverley, on a high point with a good look-out in all directions.

Whilst on the subject of beacons, I have received a long letter from Peter VK3AVJ, which contains a list of information on the state of VK3 beacons and some of their repeaters. Of interest to readers will be the following.

"The VK3RGG beacons on 52, 144, and 432 MHz, along with repeaters VK3RGL, VK3RGC, and VK3RBU, are operated and maintained by the Geelong Amateur Radio Club.

"The six metre beacon was operational until three years ago when internal problems at the site (Mount Anakie) forced us to temporarily suspend operation, so the opportunity was taken to re-build the beacon. Lack of room at the site finally saw the beacons close down.

"The Club, in conjunction with the WIA, decided to pursue acquisition of a site at Mount Anakie. After two-and-a-half years of problems with state and local government and bureaucracy in general, a planning permit has now been issued by the local council. Plans for a building are in the hands of the Institute's draftsman and it is hoped to have the necessary building permit within eight weeks, after which time construction will commence in earnest with a projected completion date of November 1986.

"Installation of repeaters VK3RGL (2 m, VK3RBU (70 cm), and beacons VK3RGG (6 and 2 m), should take place within two weeks of the completion of the building.

"The new building has been designed to accommodate four 19 inch by seven feet (482 mm x 2 m) equipment racks, work-bench, isolated battery box and room to move. Present equipment will occupy two racks with the remainder designed for future expansion. The 70 cm beacon is part of this planned expansion and could be operational during the latter half of 1987.

"All beacons and repeaters installed at Mount Anakie will be controlled remotely via a two metre uplink. The system currently in operation on VK3RGL is based on the INTEL 8748 single chip micro-processor.

"The Club also constructed and installed VK3RGC (147.725/147.125) at Montpellier (on the western edge of Geelong) during 1985. This is a low power local area repeater designed to serve Geelong and the surrounding areas to about 20 km."

Thank you for the fill in information Peter. The Club certainly has not been wasting its time during the period the beacons have been missing and we look forward to the completion of all the projects.

Still on beacons and associated information. Gili VK3AUJ, reports that Lionel VK3NMA, recently had a contact with Sojo VK0SJJ, at Macquarie Island, on 20 metres during which it became known that Sojo is set-up on six metres and has a kayer running on 52.150 MHz (added to the above list). Sojo has heard the Hobart six metre beacon at odd times. Sojo is very keen and spends quite a lot of time on 40 and 20 metres and would welcome reports.

Gili says to contact Sojo is fairly hard but probably the best way is by Telex, which goes in by satellite. This is called Inmarsat and the Telex number is 582 1543115. Due to the cost, a short message would be best providing sufficient information is included for Sojo to understand what is required of him.

Two metres is not yet operational from Macquarie, but Sojo will have it ready at the first opportunity, hopefully when weather conditions improve later.

Sojo runs the kayer on 52.150 and monitors other beacons and the call frequency from time to time.

While talking about the beacons from cold places, Mark VK6AQD ex-VK0AQ, said the Mawson Beacon is not likely to be on during the winter months as the building in which it is housed gets very cold and frequency drop out can occur and this is not helped when power failures occur at Mawson. There are hopes that the beacon will return to a normal schedule from about November onwards. Apparently the hut which houses the beacon is not well located and it is quite a task walking through the snow to re-activate the beacon during the winter; hence it is easier to leave it off.

### BRISBANE REPORT

A very interesting letter comes from Paul VK4AUR, who lives at Wynnum in Brisbane and for the first time really gives an insight into the extent of the end of year/yearly 1986 openings on two metres in that area, and further reinforces the solid coverage of the various two metre openings at that time.

The first opening occurred on December 5, 1985 from 0744 to 0752, when VK4AUR worked ZL3ADH, ZL3ADT, ZL3DJ, and ZL3TC. All signals were around S3. At 0816, heard ZL2AL briefly.

The next opening was on 27/12 with ZLS, VK1, 2, 3, 5, and 7 being worked. The next morning at 2233 UTC (until 27/12 day) until 0140 (28/12) Paul worked VK3DFI, VK5NC, VK7ZF, VK7ZAR, V

VK7ZIG, VK3EX, VK5DJ, VK5AIM, VK5ZRO (mobile), VK5ZDR. Signals varied from S3 to S9+.

On January 1, 1986 VK4ZSH worked VK8ZL at 0820. At 0832, the band opened again and VK4AUR worked VK3WN, VK5NC, VK3DFI, VK3DRF, VK3AUJ, VK3KD, VK3BHE, VK3KEX, VK3DL, VK3XQ, VK3ZU, VK3AL, VK3V, VK3DU, VK3AGB, VK3KQ, VK3KUB, VK3AUJ, VK3ZBJ, VK3KAS, VK3UM, VK3AMZ, and VK3BHS. Signals were often S9 with the signal from VK3UM at S9 + 20 dB for 10 minutes.

On 8/1, at 0823 worked ZL1SW (actually Lionel VK3NM, on holidays) with S8.7 signals for ten minutes. On 10/1 worked VK7Z ZIF, ZAR, and JG, between 0946 and 0958, at S7.

The last real opening was on 15/1 between 0656 and 0911 when VK7ZF, VK7KQ, VK7ZAR, VK7ZAR, VK7KD, VK3ZEO and VK3AKJ were worked with signals to S9. VK7ZAR portable was incredibly strong at 0709 UTC, and from then on "all hell broke loose!" Another 30 stations in VK3, VK5 and VK7 were worked, signals peaking to S9+.

Since then, Paul reports, the band has been relatively quiet if it wasn't for Gordon VK2ZAB, and his scheds on 144.300 each Saturday and Sunday morning, the SSB part of two metres would be very quiet. The ZL2VHT beacon has been heard along the Gold Coast and north of Brisbane on a few occasions (3/2, 4/4, and 8/4) but no ZLS.

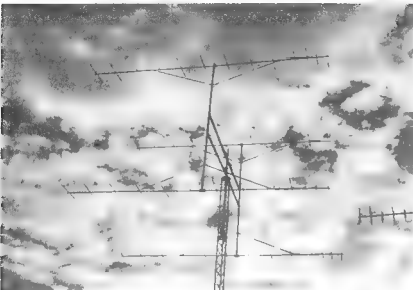
On 4/4, in addition, the ZL 70 cm beacon was also at good strength, but no ZLS.

The equipment Paul VK4AUR, uses consists of a T9711A transceiver, HL 160V25 amplifier at 180 watts PER, a VV-200VOX mast-mounted GAsAFET pre-amplifier. The feedline is 9913 coax feeding in a four port power divider and 9913 coax phasing harnesses. Antennas are four, 13 element long boom Yagis with ERP possibly around 18 kW. However, during the Es openings he was using a home-brew 15 element quad, which he was down quite a bit on ERP. The present QTH is at sea level and the antennas are at 50 and 40 feet (about 15 and 12 metres). Paul also mentioned some activity associated with the Eta-Aurora meteor showers on May 4, 1986. He worked David VK3AUJ, at 2210 on the Sunday morning with S7 reports both ways. After a quick contact with VK3UM, VK1BG and others on 80 metres, he set up a beacon on 144.300 with periods of 10 seconds transmit and the 10 seconds receive, running time 2330 to 0200 Sunday morning and again from 0800 to 1200 during the evening. No one was actually worked but a few signals were copied, mostly during very short bursts. The best was two seconds of CW at S2/3 at 0902 UTC. Later John VK2FG, in Glenbrook reported hearing Paul's kayer at different times amongst the 33 signals heard during the evening session. Other reports said VK4AUR was also heard in VK1 and VK3. He concluded it was an interesting experiment.

I was not aware that Paul had come from New Zealand originally. But after early July he was to return to New Zealand permanently and will be putting out a good signal from ZL1. He suggests VK stations look for him on 144.100 SSB. Thanks for writing Paul, we all wish you well in New Zealand and would certainly appreciate hearing from you as time permits.

### A VERY LONG ANTENNA

The May 1986 Japanese CO ham radio 50 MHz page carries some details of what must surely be the ultimate antenna for 50 MHz. It has 11 elements on a boom 13.4 metres long (that is more than 40 feet). It is capable of operating at 1000 watts PER has a gain of 14-16 dB, front-to-back ratio is 22-26 dB, side-lobe 25-30 dB, the SWR is 1.25 at 50 MHz, 1.1 at 50.750, and 1.3 at 51.500, 1.5 at 52.000 and 1.8 at 53.000 MHz. And it



The four by 13 element two-metre array of Paul VK4AUR, in Brisbane.

weights 20 kg. Quite a structure. Imagine four of those on six metres, they would make the band hum a bit! Thanks to Graham VK8RO for the information.

While on the subject of antennas, I note that David VK2BA has been making the most of the winter six metre lull by replacing the elements on his beam to allow it to operate on 50.110 MHz. His 10 metre beam of five elements has also been returned to the mast in anticipation of some solar activity.

#### THE ROSS HULL MEMORIAL CONTEST

Following my request, some comments have come in regarding rules and scores for the annual Ross Hull Memorial Contest conducted in December/January. The following points seem to convey the general impressions gained:

1. The length of the contest was about right.
2. The scoring points on the basis of being irrespective of distance seemed completely unacceptable.
3. The points for bands above 1296 MHz were far too high when compared with the one point for 52 and 144 MHz.
4. The bonus for each new call area made operators chase call areas rather than working more readily available stations in already worked call areas.
5. With the already high points for bands above 576 MHz there was no need for an extra bonus of 10 points for each extra band used.
6. The number of logs submitted is in no way a reflection of the total number of participants. A count of the stations worked by the higher scoring entries should give an indication of the interest in VHF/UHF at that time of the year.
7. Human nature dictates that if you have little chance of receiving an award then you are less likely to submit an entry in the contest unless your entry can be counted along with others to form a State or some other total. Some said they rarely ever sent in logs but were never-the-less very interested in the actual contest and thought VHF would be the poorer for not holding the contest in the summer.
8. A bonus could be considered reasonable if it was applied after working a certain number of stations, eg perhaps an extra five or 10 points for every completed 10 contacts and would possibly be best applied on a band by band basis rather than a totals basis. This could lead to more contacts on each band.
9. There was support for the idea of the contest

being for operation on 52, 144 and 432/576 MHz for a combined total, with separate awards for top scorers on the bands 1296 MHz and above

From the above you can see some thought is being given to the present problems. As your writer of these notes, I state here and now that I am totally opposed to the abolition of the Ross Hull Memorial Contest and will do everything I can to keep it going. The cause would be helped if more logs were submitted, but I did in fact work hundreds of stations in the summer E period so there are plenty of stations active at this time.

#### 50-54 MHz DX STANDINGS

DXCC Countries based on information received up to June 15, 1988. Cross-band totals are those not duplicated by six metre two-way contacts. Credit has not been given for contacts made with stations when 50 MHz was not authorised.

- Column 1: Six metre two-way limited  
Column 2: Six metre two-way worked  
Column 3: Cross-band (6 to 10) confirmed  
Column 4: Cross-band (6 to 10) worked  
Column 5: Countries heard on 50 MHz  
Column 6: Countries heard on 52 MHz

| CALL SIGN | 1  | 2  | 3 | 4 | 5  | 6 |
|-----------|----|----|---|---|----|---|
| VK8GB     | 42 | 42 |   |   | 13 |   |
| VK2BA     | 29 | 29 |   |   |    |   |
| VK4ZJB    | 26 | 26 |   |   | 4  |   |
| VK2DQG    | 25 | 25 |   | 2 | 12 | 3 |
| VK3OT     | 25 | 25 |   |   | 10 |   |
| VK2QF     | 25 | 25 |   |   |    |   |
| VK2VC     | 24 | 24 |   |   |    |   |
| VK3AWY    | 22 | 22 |   |   |    |   |
| VK2BNN    | 20 | 21 |   |   |    |   |
| VK5LP     | 20 | 20 |   |   | 6  | 3 |
| VK3XQ     | 19 | 20 |   |   | 1  | 1 |
| VK4ALM    | 19 | 19 |   |   |    |   |
| VK3AMK    | 17 | 17 |   |   |    |   |
| VK4TL     | 17 | 17 |   |   |    |   |
| VK3NM     | 16 | 17 |   |   |    |   |
| VK7JG     | 16 | 17 |   |   | 2  |   |
| VK3AUJ    | 16 | 17 |   |   |    |   |
| VK4ZSH    | 15 | 16 |   |   |    |   |
| VK4ZAL    | 14 | 14 |   |   |    |   |
| VK8GX     | 10 | 10 | 1 | 1 |    |   |
| VK3ZZX    | 10 | 10 |   |   |    |   |
| VK6RO     | 9  | 9  | 3 | 3 | 2  | 3 |
| VK4KHZ    | 8  | 10 |   |   |    |   |

The minimum number of countries confirmed for an operator to commence being listed is five, including VK.

The position on the list is determined by the number of confirmed contacts. Where two or more operators have the same total, those first date listed with that total can only be displaced by

someone having a greater number of confirmed contacts.

The next list will appear in February 1989, and entries will need to be on my desk no later than December 15, 1988. Claimants are reminded that full details of all contacts are required, viz date of contact, time in UTC, call sign of station worked, country, mode, report sent and received, QSL sent and whether received, split frequency contacts should be indicated. Please add your own call sign and date of your claim.

I still reserve the right to ask any claimant for QSL cards to support verification if considered necessary.

Further entries are invited. The fact that you may not have worked as many countries as someone else should not stop you from entering. Someone has to be at the top and positions on the ladder do change from time to time. This time we see John VK4ZJB, moving into third place, he was formerly in position five, while Graham VK8GB, further consolidated his top position by adding two more countries with one more confirmation still to go to bring his confirmations to 42 countries.

Incidentally, it is interesting to note the call signs of the countries heard by Graham on six metres but which he was unable to contact. They were WA4TNV/KL7 on March 28, 1981, ZS6LN on April 16, 1979, KZ5NW on March 11, 1979; KP4CL on April 3, 1980; ZK1AA on April 25, 1979; HS1YL on May 1, 1980; HB9DIA on February 20, 1982; PUJEE on March 23, 1982; EL2AV on April 4, 1982 and T12NA on April 8, 1982. In addition, the following beacons were heard: ZB2VHF 18/11/81; FYTTHF 3/80 (on many occasions), SB4CY 3/4/80. No stations were worked cross-band 10 metres to six metres.

#### BEACONS OF THE WORLD

Bill Tynan WX3O, in his QST column *The World Above 50 MHz* for June 1988, carries a list of known beacons of the world. His list gives 82 beacons between 50 005 and 52 510 MHz. Of these, 56 are below 50 100, with a further 20 in our own area and New Zealand on 51 and 52 MHz. I feel tempted to give you a one-off coverage of the listing for future reference, but will defer the matter for the time being. I note there are no less than eight beacons listed for South Africa.

#### GENERAL NEWS

During May, I had the opportunity of meeting Gordon VK2BIB, at his home during one of my travels. His superbly situated VHF site brings him the pangs of envy, situated as he is on the top of a hill at Barrow Heights, with an unobstructed 360 degrees view of the countryside. Just for an exercise, Gordon suggested it may be possible to speak to someone in Canberra, so he fired up on 70 cm and immediately has an S9 contact. Signals were even there from Melbourne and the night was not considered to have been enhanced in any way for propagation. Gordon is regularly in contact with stations over a large area of New South Wales and works into Brisbane as well.

The important point, of course, is the fact that Gordon does in fact have a very good site, but he is using it to his advantage and by so doing it is encouraging others to come on and have contacts. One can now also understand why he has been so successful with contacts using aircraft enhancement with his 0 degrees horizon.

In an effort to increase interest in contacts via aircraft enhancement, Gordon sets out the following parameters which, if available, could lead to success using this mode:

1. S2 peak signal considered the minimum, ie -135 dBm.
2. transmitter power 400 watts PEP.
3. antenna gains 20 dBi at both ends.
4. 747 aircraft at 40 000 feet.
5. angle of incidence one degree minimum.
6. receiver limited by external noise only, ie a reasonable noise figure.

All this gives an optimum distance of about 1020 km.

Gordon points out that distance is not far short of the Adelaide to Sydney path and suggests anyone east of Adelaide, with a view not obstructed greater than one degree (or less is even better) should be able to make it to Sydney



with the now fairly frequent 747 flights. The flight has to be such that the aircraft track crosses the signal path, so Adelaide to Sydney flights are worth trying, but Adelaide to Melbourne are not.

Gordon would be prepared to attempt contacts with anyone dedicated enough to try, but any reduction from the parameters listed drops the signal level accordingly, eg 100 watts PEP is 8 dB down so signals would be S1. The distance also applies regardless of frequency, so the same conditions apply on 70 cm as on two metres.

So there you are, the challenge is offered. I would like to try but my three degree horizon to the east makes it virtually impossible, but I am sure someone like Roger VK5NY, sitting on his mountain top would have a good chance. Over to readers!

## MOUNT GAMBIER CONVENTION

A very successful SERG June Holiday Convention was held at Mount Gambier with attendances up on last year. The weather was generally quite

good for the time of the year and a very extensive events program was conducted. The SERG Trophy was won by Victoria as it was also last year, so VK5 is going to have to get the big stick out if they want to regain the coveted trophy.

The number of entries in the home-brew competition was down on previous years and in judging the entries, I formed the opinion that the work was not as tidy as usual. The winning entry was a beautifully made, two metre cavity filter which was constructed of copper and brass and was one of 26 such devices made by the entrant, Brian VK3AFN.

## CLOSURE

As I was closing off these notes the mail arrived and included a letter from Graham Baker ex-VK8GB, now residing in Canberra. Graham confirmed his contact with ZM80Y, which now completes his list of 42 confirmed countries from Darwin. Congratulations! Accordingly, the

Standings List has been amended but the text regarding Graham, which was previously written, has been left as written.

Graham says he has bought a house and is gradually settling in, but so far is not operational on amateur radio.

Although we are at present in the lowest part of the sunspot cycle, I would suggest you still keep an ear on six metres during the coming equinoctial period, when occasional improved conditions result in long distance contacts particularly out across the Pacific. Of course, November/December/January later this year will be a prime time to also be looking in that direction on both six and two metres!

Closing with the thought for the month: "The hand that fits the glass that cheers, should not be used to change the glass!" and "A man's reach must always exceed his grasp!" 73 — The Voice in the Hills.

**Ken McLachlan VK3AH**

Box 39, Mooroolbark, Vic. 3138

# How's DX?

## DODECANESE ISLANDS

Due to a licence examination now being able to be taken on the islands, it appears that there could be an increase in activity from this area in the foreseeable future. Apparently 13 new licences are about to be issued.

## BELIZE

From July 1, V3 call signs were effective as follows:

The prefix V31 will indicate a Grade 1 licence and V32 Grade 2 certification. The suffix blocks in geographical order are AA-EZ = Corozal, CA-DZ = Orange Walk, FA-KZ = Belize, LA-MZ = Stan Creek, NZ-OZ = Cayo and PZ-QZ = Toledo.

## THE RIGHT APPROACH?

9G5JW, is noting on the back of his cards — "I am sorry but I have not yet the regular authorisation for transmission because of problems with local administrations delay. This is only to confirm and is not valid for DXCC, WAZ or others." At least everyone knows where they stand and the card is valuable unless authorisation, if granted, is belated.

## ANOTHER PREFIX AND SUFFIX

AZ=ARU is in commemoration of the IARU Region 2 Conference to be held in Buenos Aires from October 20 to 25. The prefix and suffix will be heard until October 31.

## WAC UPDATE

The International Amateur Radio Union (IARU), has updated and improved the Worlded All Continents Awards program. Two new certificates have been created, one for CW and one for Phone.

The IARU has officially adopted the boundaries of the six recognised continental subdivisions of the world. It is of interest that they issued 137 5-Band Certificates last year, 20 6-Band, 3 QRP and 79 Satellite Certificates amongst numerous other types that were issued.

## INTERNATIONAL REPLY COUPONS

International Reply Coupons (IRCs) are now 75 cents each from Australian post offices. They have climbed to 80 cents each in America and there could be another rise in VK shortly.

## FRANK JOSEF LAND

Contrary to a lot of discussion on the 20-metre band, the station EK1P, was operational from Franz Josef Land. QSL via PO Box 88, Moscow.

## SINAI DESERT

Beware! 'SU2B' has been active and giving his QTH as the Sinai Desert. He is asking for QSLs to go to Johan, NPO 30, 3508 VP Utrecht, Netherlands.

## BULLET PROOF VEST AT LEAST

V08ZZ has left Diego Garcia and is now on a tour of duty in the Philippines. It is his intention to try to

activate Spratly Island next March.

My opinion is that this area should be temporarily deleted from all DXCC listings before another unforgettable experience, that will be more disastrous than the last, occurs or at least until hostilities in the area cease.

I personally feel that he is a very courageous man but also very foolhardy to risk his life, as well as others, to give DXers a new country for their DXCC tally.

## NIGER

Alan ex-TU2GC/TU4BR, and his wife Mary ex-TU2GDTU4BS, have gone QRT. They commenced a two year assignment in SU7-land last month and are hoping that the authorities will grant them a licence. So do many DXers!

## MAURITIUS

According to a number of reports, licensing in this area is becoming rather difficult for the locals as well as visitors. If this is the trend, it is going to be more difficult to get operations off the ground from 39B, 7 and 9 and they will gradually climb to being in the much wanted zone of countries for DXCC.

## AGGRAVATION

The stories of the aggravation between Frank DL7FT, and the Greek amateurs over the Mount Athos operation seem to be appearing everywhere, as well as being heatedly discussed on various bands.

Unfortunately there is enough aggravation in the world today without it creeping into the hobby, we all enjoy.

Probably the whole truth will never be known but if the documentation is accepted by the ARRL, good. If it isn't, let it be written down as experience. Similar occurrences have happened before so let's forget it! Let us get on with DXing and making international friends, in this the International Year of Peace.

## MOZAMBIQUE

The Mozambique International Amateur Radio Association has been formed recently. Unfortunately it doesn't look hopeful for any activity for a long time though.

A station signing G9UFM, has been heard but it is a 99 percent chance that his paper-work, if any, would not stand up to scrutiny.

However, all may not be lost from this area, as the Mozambique licensing authorities are believed to be inquiring into purchasing monitoring equipment that will cover the amateur bands. Maybe there could be a scent of activity on the horizon, even though it may be very distant.

## MARION ISLAND

This island will not be heard this year as the working party has departed with no amateurs in the crew.

Next year is another hope, as service of one



Winter is nearly behind us and spring is in the offing, when it will be able to enjoy the sunshine. Now is the time to plan a check of your antennas before the spring and summer winds are upon us, also to see how the weather-proofing stood up to the winter rains, sleet, frost and at times another such QTH. the birds.

The solar cycle should start to begin a climb to allow better DX later this year or early next year, although really the low has not been so bad. One has had to search just a little harder for those winter countries.

I have not made a plea for reports and assistance with the column for a considerable time. However, I would like to see some more reports in the mail each month of what you, the reader, has been hearing or working, so that it may be passed on to your fellow DXers, not only in Australia, but worldwide as these notes are distributed to a number of overseas newsletters and magazines on a reciprocal basis.

So how about it ladies and gentlemen — some more information please for the column you read!

## CONGRATULATIONS

The President of JARL, Shozo Hara JA1AN, was decorated by the Japanese Government in April. The citation, in part read 'in recognition of your contribution to the development of amateur radio as president of the JARL for 16 years.'

Part of the criteria for the award is that the recipient must have served an organisation for 15 years and be older than 58 years of age. JA1AN is 58.

On behalf of all DXers, congratulations and thanks for all you have done for amateur radio, Shozo.

## BAROMETRIC CHANGE

As from May 1, 1986 the Australian Bureau of Meteorology has replaced the readings of barometric pressure from millibars to hectopascals (hPa) to include greater international standardisation of equipment.

The numerical value of each unit is the same — one hectopascal = one millibar and barometers can be read as usual without any special changing the wording.

Incidentally, this is not the first change as up to 1919, the barometric change was quoted in millimetres due to the pressure change in a tube of mercury.

The change has been given very little publicity, but someone with a sense of humour placed the following advertisement in a West Australian newspaper.

Approach Marriage

**BARR-PASCAL:** Mr and Mrs Barr are pleased to announce that on May 1, their daughter Millie will become Mrs Hector Pascal. Congratulations Millie.

year on the island counts the same as their compulsory National Service.

I think I know which alternative I would be taking if placed in a similar predicament — learning to become an amateur, passing the exam and putting my name down fast.

#### 4U1VIC AND THE HEAT IS ON

The controversy over whether 4U1VIC should have separate country status for the ARRL DXCC award is unfortunately heating up. Reprinted below is the April editorial from *QSP* the monthly journal of the Österreichischer Versuchssenderverband (OVSV).

"You will remember that we (the Austrians) have already announced several times in *QSP* that 4U1VIC could become recognised for the status of a separate DXCC country. Logically, as the Vienna International Centre is an extra-territorial area and is recognised as the third centre of the United Nations, the analogy with 4U1UT is clear — or is it? At least to a European's modest thinking, it would seem so.

"It is as inexplicable for the Austrian 'relatives' of 4U1VIC as for the entire European DX community in general that the ARRL (or the Internal DXCC organisation) has managed so far considerable efforts in preventing country status for 4U1VIC. As this appears to not be enough to block the status, the DXCC rules were then changed to apparently exclude 4U1VIC.

"We feel that this is a special insult in that ZC4 was recognised as a country under conditions not unlike that of the United Nations. We do not really know what is behind this action. It is certain that some American amateurs have voiced their opinion to the ARRL but unfortunately without success.

"In his justified rage over this matter, the first President of the Vienna International Radio Club, (Dr Horst Eisenlohr OE3OLW ex DL3OL), in a personal protest to the ARRL actions, has returned his DXCC No. 5972. It is not surprising that this scientist, with almost 25 years in the service of the United Nations, is not convinced that the ARRL is not so exemplary. ARRL is still what it once was.

"We can, as the OVSV, only give our amateur friends at 4U1VIC, our moral support. It is hoped that someone at the ARRL will begin to understand that the ARRL is digging its own grave, in that it is destroying its own international reputation, as well as that of the DXCC.

"Apparently a deserted island of rocks with often a doubtful country relationship has more worth than a internationally recognised major location of the United Nations. Maybe an American DXpedition to 4U1VIC, sponsored by a well-known DX Association, could bring more public exposure?

"Please help to promote democratic conditions in this matter, in QSO with Americans, ask them when the ARRL will finally grant DXCC status to 4U1VIC.

"Signed: Dr Ron Eisenlohr OE3REB, President, Österreichischer Versuchssenderverband (OVSV)

My personal comment is that I don't feel I am qualified even with all the facts at hand, to make judgment of who is right or wrong but I do have one question, why was Rule 5, which encompasses this problem, changed after 4U1VIC's application was purportedly submitted for consideration? What is fair to one is fair to all and as I have previously noted in this column, either allow 4U1VIC or delete all the others that do not meet the criteria as the wording now stands.

#### ANTIPODES

Tony KL7AF, a member of the WIA, had the pleasure of a visit from Graham VKGDC. Graham is presently touring America in a Camper Van.

Tony's QTH is Kodiak Island, which is very close to being the antipodes of Macquarie Island, where Graham was located. It is thought that they did have a QSO during Graham's stint on the island, but it is not known for sure.

#### A LITTLE HUMOUR

Ever been in a big pile up or a net operation for a rare station? The stations before you are giving the much wanted station their families life history. Well a poem written by W4UP, for *CQ* magazine sums it all up in saying:

Surely there's a special place in hell,  
Full of chains and whips of heavy leather,  
For those in a pile-up, contest style.  
Must send name, address and current wealth.

Operators, one and all, remember this the next time you get to work that much wanted station please — because I might be next in line!

#### SENEGAL

The following Senegalese prefixes represent the 'countries' as follows:

3WH — Cape Vert, 6WZ — Casamance, 6W3 — Diourbel, 6W4 — Fatick, 6W5 — Senegal Oriental, 6W6 — Sine-Saloum, 6W7 — Thiès and 6W8 is Loga.

#### A PUZZLE OR CONFUSSION?

Bob Winn WSKNE, Editor of *QRP DX* poses the following: "...Here is an interesting puzzle, the Golan Heights, a 400 square mile plateau, which was originally a part of Syria, was captured by Israel in 1967, and annexed by Israel in 1973, it is patrolled by United Nations peace-keepers, but for DXCC purposes it counts as Syria." Personal comment is why? ... VK5AH.

#### SOVIET UNION

Soviet Union amateur prefixes can be a mystery. Following is a list of prefixes and to what area they denote.

RA, RN, RV, Russian SPSR.

RW, RZ, UA, UN, UV, Russian SPSR.

RU, RU, RU, Russian SPSR.

UB, UT, UY, Ukrainian SSR.

UC, UC, Byelorussian SSR.

UD, UD, Azerbaijan SSR.

UE, UE, Georgian SSR.

UF, UF, Armenian SSR.

UG, UG, Turkmen SSR.

UH, UH, Uzbek SSR.

UI, UI, Tadzhik SSR.

UJ, UJ, Kazakh SSR.

UK, UK, Kirghiz SSR.

UL, UL, Moldavian SSR.

UM, UM, Lithuanian SSR.

UN, UN, Latvian SSR.

UR, UR, Estonian SSR.

#### A FAMILY PROFILE

It is not uncommon these days to find family groups with a common interest in Amateur Radio. One of the wonderful concepts of our hobby is the way it caters for such a wide variety of interests within the overall context. This family finds the radio to be an excellent means of keeping in touch with other — sunspots and band conditions permitting.

It all started in 1950, when John, encouraged by Brian VK5CA, gained his AOC and became VK5WY John at present is the Senior Mining Engineer for Bougainville Copper Limited in Panguna, Papua New Guinea and he finds time for other varied interests such as photography, sailing, silver-smithing and is a keen 'home brewer', an interest he shares with his son Peter.

Philip, (Sue's husband and John's son-in-law), is an electrical engineer with the State Electricity Commission in Victoria, at the Hazelwood Power Station located in the Latrobe Valley. They live on a small farm overlooking the valley, where they breed sheep. Philip's other interests include photography and agriculture and Philip finds time to be an active member of the volunteer Country Fire Authority.

Sue is a librarian, teaches Indonesian studies and craft and has other interests such as reading, needlework and gardening. Both Sue and Philip enjoy bushwalking and cross country skiing when time permits.

Peter's life is electronics, and he is a keen constructor who enjoys discussing his projects whilst talking to his father in Panguna and is studying Electronics Engineering in Melbourne.

John is still hopeful that his youngest daughter Cathy, will take up the hobby. Cathy has passed the CW, but has temporarily 'relaxed' on her theory studies due the pressure of examinations of her final year at High School.

John's wife Noreen and the other members of the family tolerate the hobby patiently. John admits, but they have many varied interests in the art and craft field, showing very little inclination to the pastime we all enjoy.

#### BITS AND PIECES

Phil VS8CT, hopes to be operational for a short stint from KP2 this month. \* \* 8U5JB, Jim "Bull" Bullington, went QRT on July 7. Where will he become Ambassador next? \* \* RFOFWW, runs a net on Wednesday and Friday of each week on 14.995 MHz. \* \* Visiting Japan late this month — then don't miss the 'Amateur Fair' and the Tokyo DX Convention in Tokyo on the 22, 23 and 24th, which will be held at Harumi. \* \* Market Reef could have a prefix different to OJ0, for future DX operations. \* \* Some JA operators are keen to operate ZA with the assistance of BY operators this year. A possibility? \* \* Manola 3C1MB, is still quite active from Equatorial Guinea. If you are

From L to R: Philip VK5KAC, Peter VK5DXD/ P29PW, Susan VK5PSO and John VK5CWY P29JW.



lucky with a contact, QSL to EA7KF you will receive a quick turn around. \*\* 25 candidates sat for the VU examinations on April 25. \*\* 6F2 and XE86, some special prefixes for the Mexico Soccer World Cup Games. XE68N operating from the games site is XE1NJ. QSL to K6VNX for 6F2MX, XE2AQ for 6F2AQ and XE2FL for 6F2FL. \*\* N7DF/TT8 cards are now acceptable for DXCC whist DL7AH/3X November 1984 CO WW CW cards are a no-no. \*\* Bhutan and Japan signed a diplomatic agreement earlier this year. Can we expect to hear Pradhan ASI/PN, to have company and assistance in the near future? \*\* Z525 is a prefix all Z5 club stations were allowed to use until the end of May. \*\* X9SWS is operated by JA1WSAJJ3PPT. QSL to JH1AGU. \*\* TF1 is an unusual prefix. There is only one listed in the Call Book. Watch for TF1PS below 14.200 MHz around 1200 UTC. \*\* Don't forget SEA Net each day of the year at 1200 UTC on 14.230 MHz. \*\* Another unusual call heard around has been 4U0IT. It is a special call for 4U1TUT — reason unknown. \*\* GBOSWR should be in SW this month. \*\* Rag J97FO, active from his 'second' home, Bear Island. \*\* 'XV1AA', very doubtful if he was genuine. \*\* JA1ACM, is reported to have sent 5XSGK, a complete RTTY station. \*\* JWQA quite active. \*\* Listen on the repeaters for Ross WB8QJ, who will be visiting VK2, 3 and 4 this month after activating his ZK1XE call for the first four days of this month. After leaving VK, Ross, will activate ZK2 and K8E, en route to his home QTH. \*\* Rick N7DZ ex-AL7O, started a one jour duty in Minami Torishima in June. QSL via NG7X. \*\* Mike 6W1NX ex-TR80IT, is due to be QRV. \*\* To receive a card for 4N0IAR, QSL to YU4FRS. \*\* The prefixes of XL7 and VQ7 were originating from Canada. \*\* TV8KAR, was active to commemorate the 100th anniversary of France's gain of the Alsace-Lorraine Liberty. \*\* New radio laws purported came into force in Thailand on the 27th of last month. Incidentally the date of their election! Whether we will see any more activity from this area is the big question? \*\* Well-known DXer Mike ex-A71AD, is now signing 5B4TL. \*\* UA0FO is located on Sakhalin Island. \*\* Australia has forwarded a proposal to

India with reference to a Third Party Traffic Agreement. \*\* A five year old Kindergarten student became Japan's youngest licensed amateur at the examinations held in April (see page 46, July 1984). \*\* H44AJA, is QRV on 40 and 15 metres SSB. QSL to the home call J9ECMB or via J9ECMA. \*\* 8J3JST, was a special call to commemorate Japan Standard time. UTC plus nine hours. QSLs to JARL. \*\* Germany and Japan, signed a reciprocal license agreement effective May 1, this year. \*\* The F00 prefix was due to change last month to F04 or F05. \*\* ZL80Y is now QRT — QSL to ZL4OY. \*\* There has been a postal dispute in Finland that has and could still be holding up mail in both directions. \*\* NH6FKUH9, quite active from Wake Island. \*\* A number of French operators hoped to actualise TP2CE, the Council of Europe located in Strasbourg. This initial operation was scheduled for June 27-29. They hope to attain DXCC status for the operation! (I wish them luck, but no comment — VK3AH).

## IN CONCLUSION

Another 'gem' of a quote from Lee KH6BZ who produces the weekly zensonic report KH6BZF Reports from Hawaii. Lee says "... I am convinced that the only people making money these days ... are the ones who sell computer paper! I remember I never ever make mistakes! I!" Lee, anyone with a computer printer would have to agree.

## QSL TO —

**HAIFA** Mike Manero, Colegio Internacional de Carabobo, Apartado 103, Valencia.  
**IBEWUM** Gwyn Morison, PMB 2198, Jose, Plateau State, Nigeria.  
**SWIFS** WBSFZL, 4132 Birch Circle, Temple, TX 76788.  
**GUSTIN** CFE, PO Box 24077, Usumbura, Burundi.  
**DTYBES** PO Box 507, Fushou, Peoples Democratic Republic of China.  
**FRIGAN** PO Box 672, Noumea, New Caledonia.  
**NCHNDH** Herbert, San Cristobal, Galapagos Islands.  
**HHPV** PO Box 428, Port au Prince, Haiti.  
**JAMELY** PO Box 1213, Port au Prince, Haiti.

**HG0AZW** PO Box 120, San Andres Island, Colombia.  
**KHCFYH** PO Box 144, Barranquilla, Colombia.  
**IT7WYH** PO Box 4, Brindisi, Italy.  
**NHFUUKH9** PO Box 86, Wake Island via Hawaii, 96886 USA.  
**CAMP** 270 Skycrest Drive, Ashland, OR 97520, USA.  
**ODSFE** PO Box 55173, Beirut, Lebanon.  
**T32AN** PO Box 17768, Honolulu, Hawaii 96817, USA.  
**TJCH** PO Box 1169, Yaounde, Cameroun.  
**ZKIAL** PO Box 80, Rarotonga, Cook Island South Pacific.  
**ZK1CT** Dr Archie Gunase, Maake Island, Cook Islands, South Pacific.

## ILIANO AND WORKED ON THE EAST COAST

**36 METRES** 3APF, 3B8FS, 3C1MB, 3C1NX, 3D2ER, 4Z4IK, 6W2EX, 8J3B, 9W2HR, AH2BE, BV2FA, 8Y4AA, EU1P, FRACY, HG4SEAM, HLCW, IT9GCV, YJWSE, K-7AF, K1L7XD, NH6FKUH9, DH3QZOH, SUHR, T3GAC, T32AN, T7TC, T7ZJ, TAIE, V85AA, VK9ND, VK9GZ, XL7AGC, ZL80Y, ZL4OY and Z55VF.  
**40 METRES** HG4SEAM, KHCFYH and YV2BXT.  
**80 METRES** HG4SEAM, NL7O and VE7BK.  
\* Denotes CW operation.

## THANKS

Sincere thanks are extended to the following: The Editors of weekly, biweekly and monthly newsletters including the ARRL NEWSLETTER, BARG, CO-GSO, DX FAMILY FOUNDATION NEWSLETTER, INSIDE DX, JAN and JAY O'BRIEN'S QSL MANAGER, JST KH6BZF REPORTS, LONG ISLAND DX BULLETIN, N AR Nations, 'nature of Amateur Radio' (Hyderabad), PAKAPURA RADIO CLUB BULLETIN, QRZ DX, R8GB DX NEWS, WEATHER NEWS and THE WESTLAKES AMATEUR RADIO CLUB NEWSLETTER. Magazines including BREAK IN, COAX, COAST, JJA, CQ, JARL NEWS, KRL, NINE, QST, POLICE LIFE, RADCOM, VERON and WORLD RADIO. Members who have contributed include VKs 2PB, EBX, 3YJ, YL, CGG and WB8QJ. Overseas amateurs include -HKIRC, ZLs 1AMM and AMN. Thanks to one and all who have made the column possible this month.

## INAUGURATION DATES OF RADIO SOCIETIES

|       |                             |                    |
|-------|-----------------------------|--------------------|
| WIA   | Australia                   | 1910               |
| RSGB  | United Kingdom              | 1919               |
| ARRL  | USA                         | March 18, 1914     |
| CRRL  | Canada                      | 1920               |
| SRAL  | Finland                     | April 14, 1921     |
| RICR  | Argentina                   | October 21, 1921   |
| RCC   | Chile                       | July 12, 1922      |
| ECUR  | Ecuador                     | May 9, 1923        |
| UBA   | Belgium                     | 1923               |
| REF   | France                      | April 1925         |
| SARL  | South Africa                | May 25, 1925       |
| SSA   | Sweden                      | September 10, 1925 |
| OVSV  | Austria                     | April 1926         |
| RCD   | Dominican Republic          | June 12, 1926      |
| JARL  | Japan                       | June 12, 1926      |
| NZART | New Zealand                 | August 16, 1926    |
| ARI   | Italy                       | January 1, 1927    |
| EDR   | Denmark                     | June 1927          |
| DARC  | Federal Republic of Germany | 1927               |
| NRRL  | Norway                      | August 8, 1928     |
| USKA  | Switzerland                 | August 4, 1929     |
| HARTS | Hong Kong                   | October 1929       |
| PZK   | Poland                      | February 23, 1930  |
| PCP   | Peru                        | December 6, 1930   |
| LMRE  | Mexico                      | January 10, 1930   |
| PARA  | Philippine                  | November 1932      |
| IRTS  | Ireland                     | 1932               |
| LCRA  | Colombia                    | August 13, 1933    |
| MACL  | Malta                       | 1933               |
| RCU   | Uruguay                     | 1933               |
| LABRE | Brazil                      | February 2, 1934   |
| CORA  | French Polynesia            | 1934               |
| FRIR  | Rumania                     | 1936               |
| RL    | Luxembourg                  | March 7, 1937      |
| JARA  | Japan                       | February 17, 1939  |
| RCB   | Borvis                      | March 1, 1940      |
| RCP   | Paraguay                    | January 23, 1941   |
| CREN  | Nicaragua                   | September 15, 1945 |
| VERON | Netherlands                 | October 21, 1946   |

From JARL News April 1986

## MEMBERSHIP

Gilbert Griffith VK3CGG  
7 Church Street, Bright, Vic. 3741

I hope all members have been giving serious consideration to the Discussion Paper, which was in February's AR. There has certainly been plenty of comments about one thing or another over the years, generally seen in letters to the editor.

I wonder how many WIA Divisional Councils receive notes from clubs and individuals telling them what to do.

There is really no one and us. The WIA Executive is US. We have to tell them what we want so that they represent us when dealing with the rule makers. What you, the members, decide will affect the hobby for years to come, so make sure you understand all the arguments before giving your vote.

I am still undecided and keep dwelling on the idea that it would be fine to encourage the use of computers and their various modes by amateurs, but it is a very different thing to make available parts of the spectrum for computer operation. As an amateur radio society maybe we should put the radio part first, by keeping the standards reasonably high.

Perhaps the computer hobbyist group is not the same gold-mine that the CB groups were to amateur radio and we should stop finding excuses for our laziness in recruiting new blood.

My suggestion, this month, is for every WIA member to make himself a goal to recruit a new member each year. And if everyone enrolled an already licensed amateur we would have 100 percent representation.

Probably the best way to recruit your member is to talk with him/her and find out what they want from amateur radio. Provided you know what the WIA has to offer, you can highlight the advantages.

The main advantage is, of course, represen-

tation — there is a benefit in numbers when negotiating with the authorities.

But, most people will say, "What's in it for me?", especially those who have been previous members.

Aside from the fact that 'you get out of it what you put in', there are still a few special advantages.

For example: Repeaters, Amateur Radio magazine, Diaposals and a correspondence school at better than a quarter the cost of commercial schools.

Look up the advantages yourself, here are a few more ... books, QSL bureaus, contests. Any one of the above advantages can be well worth the initial investment of the membership fee.

Which brings me to my last point for the month

I have made a suggestion to the Victorian Divisional Council that with each membership there be given a Call Book and Regulations book. If it is to prove too expensive, I suggested that they be provided free to new members. I feel that the normal fee, less the cost of the books is better than no membership fee at all.

I would like to see a book list, with prices, included on the membership application form so that books can be ordered together with the membership fee in a lump sum.

If the correspondence course is listed it will provide an incentive for new recruits to join as well. The main thing is for members to receive something a little more material for their money because, let's face it, we are living in a very material society.

Get those pens out and give me or the Editor, or better yet, your Division a bit of feedback. Communication is what it is all about.

# VK ZL OCEANIA CONTEST

## 1985 Results & 1986 Rules

**Jock White ZL2GX**  
NZART CONTEST AND AWARDS MANAGER

**Greg Williams VK3BGW**  
WIA VK/ZL/O CONTEST MANAGER

Following are the results of the 1985 VK/ZL/O Contest. There was certainly a lull in propagation, particularly over the phone weekend. This was the 50th running of the contest and also celebrated the 75th Anniversary of the WIA. To commemorate these events, the WIA Executive provided special awards in the form of medallions for the winners of the contest.

In addition, Fred Mackiewicz, of Am-Comm Electronics, provided a special prize of an Antenna Rotator to the top Australian scorer in the contest. The rotator will shortly be presented to VK2APK.

The logs were of a generally high standard, however some were not acceptable. It amazes me that someone can operate for 24 hours in a contest and work hundreds of contacts and then skimp on the paper work. The logs are the only information the Contest Manager has to work from. If call signs are unreadable and there are too many un-noted duplicate contacts, then these contacts must be deleted from the log. Too many of these deletions and the log is unacceptable. Refer to the Contest Column this month for more information on disqualification of Contest Logs.

When signing a declaration that you have abided by the rules, then do not do not declare that you have abided by the rules and then break them. Declare that "I abided by the rules except I did not have a separate log beginning at 011 for

each band", or "I calculated my score in the method I think best and not as stated in the rules." At least this is an honest approach. Take a carbon copy of your log by all means, but keep it as your record and send the original in. Trying to read the 20th page produced by the one piece of carbon paper is very difficult and can lead to the disqualification of your log.

This will be my last year as VK/ZL/O Contest Manager. I can hear cheers of joy from many, but to those who are cheering I ask this one question — where were you when no one could be found to do the job? I have enjoyed the experience, but did not appreciate the amount of work involved and would not recommend the job to anyone who has a family and other commitments.

To those who helped me and sent encouraging comments, thank you. To those who sent criticism and other comments, thank you too. I appreciate that too, for it told me how people felt and thought. To those who hassled a whole lot of people, including abusive phone calls to my wife, no thanks at all! If you have a grievance with me, talk to me, not others who have no control over what is happening.

Now to the results. The call signs in bold type will receive an award. Where there was little competition or little effort required, no award has been made. A station can receive only one award for each mode. The numbers in the "band"

column are the number of contacts followed by prefixes, see the rules on page 22, September 1985, *Amateur Radio* for the method of calculating the final score. The DX results should be in next month's AR and once they and the awards are out, I look forward to having some operating time again.

All check logs will be acknowledged with the DX

**SCARCITY**  
Propagation conditions on 14 MHz and the number of stations operating were most disappointing — VK2ABC

Where was 10 metres? Found that the quad got into the television on 18 metres just when the band opened in Europe, gee did the wife growl! — ZL2M1  
High noise and QRN resulted in reports like 3991 — VK3AMD

Conditions were very bad ... only entered to show appreciation for running the contest! — VK4BIZ  
Not a good contest this year, lost time due to over-sleeping, power failure, solid QRN and then conditions were atrocious ... I quit with a splitting headache — VK3AOF

Strange that nobody was heard on 180 metres — ZL1BXW  
Had expected more activity from VK/ZL on 180 and 80 metres — ZL1M1

I only started to give out a few numbers, but the excitement and enjoyment increased ... — ZL4BO  
(Welcome to contesting).

### AUSTRALIAN PHONE SECTION — 24 hours

| CALL SIGN           | 180   | 80    | 40      | 20     | 15     | 10  | TOTAL   |
|---------------------|-------|-------|---------|--------|--------|-----|---------|
| <b>ALL BAND</b>     |       |       |         |        |        |     |         |
| VK2KL               | 15.8  | 99.33 | 164.98  | 134.73 | 91.45  | 0.0 | 623.482 |
| VK2APK              | 33.10 | 88.21 | 158.113 | 75.46  | 70.47  | 0.0 | 807.431 |
| VK8FO               | 1.1   | 0.0   | 304.97  | 118.67 | 107.67 | 1.1 | 438.875 |
| VK2RG               | 37.13 | 16.8  | 10.0    | 78.38  | 38.43  | 0.0 | 98.433  |
| VK4KIM              | 0.0   | 1.1   | 0.0     | 180.90 | 40.22  | 0.0 | 31.320  |
| VK4KWO              | 0.0   | 33.9  | 0.0     | 0.0    | 36.25  | 0.0 | 13.688  |
| V13BM               | 0.0   | 8.5   | 13.13   | 26.18  | 0.0    | 0.0 | 6.156   |
| VK3DCM              | 0.0   | 20.11 | 0.0     | 8.6    | 0.0    | 0.0 | 4.558   |
| VK4ATE              | 0.0   | 0.0   | 6.5     | 48.29  | 0.0    | 0.0 | 3.804   |
| VK5AGX              | 0.0   | 16.7  | 0.0     | 10.10  | 0.0    | 0.0 | 2.890   |
| VK2AIC              | 0.0   | 2.2   | 0.0     | 17.14  | 14.13  | 0.0 | 1.885   |
| <b>UNIQUE MAINT</b> |       |       |         |        |        |     |         |
| VK4SF               | 0.0   | 0.0   | 38.30   | 0.0    | 0.0    | 0.0 | 5.700   |
| VK4PJ               | 0.0   | 0.0   | 0.0     | 124.77 | 0.0    | 0.0 | 9.548   |
| VK2ABC              | 0.0   | 0.0   | 0.0     | 37.25  | 0.0    | 0.0 | 9.25    |
| VK4KAE              | 0.0   | 0.0   | 0.0     | 0.0    | 16.10  | 0.0 | 380     |

### AUSTRALIAN PHONE SECTION — 8 hours

|        |      |       |     |        |       |     |        |
|--------|------|-------|-----|--------|-------|-----|--------|
| VK2BQS | 11.7 | 30.10 | 0.0 | 49.28  | 71.42 | 0.0 | 61.857 |
| VK8RG  | 2.2  | 6.4   | 7.7 | 128.83 | 0.0   | 0.0 | 25.344 |
| VK1FL  | 1.1  | 30.12 | 0.0 | 0.0    | 0.0   | 0.0 | 4.180  |

### NEW ZEALAND PHONE SECTION — 24 hours

|                    |       |        |         |         |        |     |          |
|--------------------|-------|--------|---------|---------|--------|-----|----------|
| <b>ALL BAND</b>    |       |        |         |         |        |     |          |
| ZM1BQD             | 0.0   | 157.92 | 270.129 | 220.149 | 0.0    | 0.0 | 1161.800 |
| ZL1AAS             | 39.17 | 125.52 | 108.81  | 239.143 | 118.50 | 0.0 | 1044.435 |
| ZL1A1/2            | 22.10 | 88.41  | 77.62   | 27.22   | 0.0    | 0.0 | 233.820  |
| ZL1H2              | 18.7  | 54.21  | 0.0     | 14.10   | 0.0    | 0.0 | 35.646   |
| ZM1M               | 12.9  | 0.0    | 0.0     | 9.34    | 5.5    | 0.0 | 19.482   |
| ZL1TX              | 17.6  | 28.12  | 0.0     | 0.0     | 0.0    | 0.0 | 11.160   |
| <b>SINGLE BAND</b> |       |        |         |         |        |     |          |
| ZL4BO              | 0.0   | 99.70  | 0.0     | 0.0     | 0.0    | 0.0 | 89.300   |

### NEW ZEALAND PHONE SECTION — 8 hours

|        |     |       |     |     |     |     |        |
|--------|-----|-------|-----|-----|-----|-----|--------|
| ZM2AFY | 0.0 | 57.33 | 0.0 | 0.0 | 0.0 | 0.0 | 18.610 |
|--------|-----|-------|-----|-----|-----|-----|--------|

### AUSTRALIAN CW SECTION — 24 hours

| CALL SIGN       | 180   | 80    | 40      | 20      | 15     | 10  | TOTAL   |
|-----------------|-------|-------|---------|---------|--------|-----|---------|
| <b>ALL BAND</b> |       |       |         |         |        |     |         |
| VK2APK          | 8.4   | 60.18 | 227.124 | 313.160 | 116.62 | 0.0 | 900.360 |
| VK2RG           | 24.15 | 0.0   | 11.17   | 149.72  | 11.86  | 0.0 | 182.840 |
| VK4XA           | 0.0   | 18.10 | 206.100 | 268.127 | 149.67 | 1.1 | 542.595 |

|                    |      |       |         |         |         |     |         |
|--------------------|------|-------|---------|---------|---------|-----|---------|
| VK2AYD             | 0.0  | 19.11 | 280.128 | 200.106 | 55.33   | 0.0 | 800.406 |
| VK4PJ              | 0.0  | 0.0   | 34.27   | 284.155 | 204.112 | 0.0 | 537.882 |
| VK8DU              | 0.0  | 0.0   | 107.77  | 29.17   | 213.120 | 0.0 | 211.860 |
| VK2AOF             | 0.0  | 21.13 | 124.86  | 85.57   | 24.8    | 0.0 | 148.302 |
| VK5GZ              | 0.0  | 21.10 | 30.24   | 136.80  | 62.40   | 0.0 | 95.880  |
| VK2GZ              | 0.0  | 5.3   | 102.71  | 38.28   | 38.28   | 0.0 | 88.420  |
| V13BM              | 0.0  | 78.41 | 18.18   | 28.18   | 12.9    | 0.0 | 75.250  |
| VK5AGX             | 0.0  | 18.12 | 16.12   | 168.88  | 32.25   | 0.0 | 68.180  |
| VK3DCM             | 2.2  | 13.8  | 81.49   | 38.27   | 1.1     | 0.0 | 50.112  |
| VK3AJ              | 0.0  | 0.0   | 52.12   | 148.40  | 30.18   | 0.0 | 31.824  |
| VK2BQS             | 10.0 | 0.0   | 22.13   | 42.22   | 0.0     | 0.0 | 8.828   |
| VK1DA              | 0.0  | 0.0   | 18.18   | 22.27   | 0.0     | 0.0 | 8.108   |
| VK5BS              | 0.0  | 0.0   | 24.22   | 10.9    | 4.4     | 0.0 | 4.830   |
| VK2DID             | 0.0  | 0.0   | 0.0     | 86.47   | 6.8     | 0.0 | 4.134   |
| VK4BRZ             | 0.0  | 7.5   | 0.0     | 17.12   | 23.14   | 0.0 | 4.123   |
| VK2AIC             | 0.0  | 0.0   | 0.0     | 18.13   | 15.11   | 0.0 | 1.164   |
| <b>SINGLE BAND</b> |      |       |         |         |         |     |         |
| VK2D               | 0.0  | 3.2   | 0.0     | 0.0     | 0.0     | 0.0 | 8.0     |
| VK3MR              | 0.0  | 0.0   | 367.189 | 0.0     | 0.0     | 0.0 | 348.615 |
| VK4SF              | 0.0  | 0.0   | 32.26   | 0.0     | 0.0     | 0.0 | 4.180   |
| VK5AFC             | 0.0  | 0.0   | 0.0     | 362.188 | 0.0     | 0.0 | 80.816  |
| VK4T               | 0.0  | 0.0   | 0.0     | 249.118 | 0.0     | 0.0 | 28.894  |
| VK4KIM             | 0.0  | 0.0   | 0.0     | 36.26   | 0.0     | 0.0 | 636     |

### AUSTRALIAN CW SECTION — 8 hours

|        |     |     |       |       |       |     |        |
|--------|-----|-----|-------|-------|-------|-----|--------|
| VK2RG  | 0.0 | 7.5 | 14.13 | 43.29 | 52.29 | 0.0 | 21.812 |
| VK2BQS | 0.0 | 0.0 | 0.0   | 8.8   | 10.9  | 0.0 | 476    |

|                    |     |     |        |       |       |     |         |
|--------------------|-----|-----|--------|-------|-------|-----|---------|
| <b>SINGLE BAND</b> |     |     |        |       |       |     |         |
| VK3AMD             | 0.0 | 0.0 | 20.16  | 0.0   | 0.0   | 0.0 | 1.606   |
| VK3AJ              | 0.0 | 0.0 | 135.94 | 55.42 | 18.15 | 0.0 | 419.084 |
| V3K5               | 0.0 | 0.0 | 0.0    | 0.0   | 20.18 | 0.0 | 2.150   |

### NEW ZEALAND CW SECTION — 24 hours

| NEW LEADERS ON SECTION — 24 HOURS |     |        |         |        |       |     |         |
|-----------------------------------|-----|--------|---------|--------|-------|-----|---------|
| ALL BAND                          |     |        |         |        |       |     |         |
| ZL2BR                             | 0.0 | 22.15  | 232.123 | 176.81 | 71.38 | 0.0 | 436.386 |
| ZL1A1Z                            | 6.4 | 100.84 | 135.94  | 55.42  | 18.15 | 0.0 | 413.034 |
| ZM2AGY                            | 0.0 | 16.10  | 315.185 | 44.24  | 10.8  | 0.0 | 372.383 |
| ZL1BN                             | 5.3 | 60.36  | 143.98  | 51.40  | 39.27 | 0.0 | 363.808 |
| ZL1H1T                            | 1.1 | 8.5    | 0.0     | 0.0    | 0.0   | 0.0 | 600     |

There were no Single Band entries received in this category

### NEW ZEALAND CW SECTION — 8 hours

|                 |     |       |        |        |       |     |         |
|-----------------|-----|-------|--------|--------|-------|-----|---------|
| <b>ALL BAND</b> |     |       |        |        |       |     |         |
| ZL1BXW          | 0.0 | 11.10 | 134.95 | 14.13  | 39.27 | 0.0 | 126.440 |
| ZL1HV           | 0.0 | 6.4   | 7.7    | 100.58 | 59.28 | 0.0 | 29.735  |

There were no Single Band entries received in this category.

The following logs were rejected as unacceptable or late — VK5MS and VK5BJA.

## VK ZL OCEANIA DX CONTEST — Rules for 1986

This year the Contest will commemorate the 50th Anniversary of NZART

### FOR OVERSEAS ENTRANTS

1 a. SSB — With a 24-hour period from 1000 UTC on Saturday, October 4, to 1000 UTC, Sunday, October 5.

1 b. CW — With a 24-hour period from 1000 UTC on Saturday October 11, to 1000 UTC, Sunday, October 12.

Special conditions for both SSB and CW — During this time a maximum of 12 hours operating time will be done — in one hour blocks — based on the "even hour to the even hour" in UTC; eg 1000 UTC to 1100 UTC or 1300 UTC to 1400 UTC, etc with minimum periods of one hour

1 c. RECEIVING SSB and CW combined in above times (maximum total of 24 hours)

2 Only one contact per mode per band is permitted. All bands may be used except WARC-bands.

3. Scoring: For stations operating outside Oceania, score two points for each contact with VK/ZL or Oceania stations. Oceania stations score two points for all contacts.

4. Final Score. Multiply total QSO points by the sum of all VK/ZL prefixes worked on all bands. (The same VK/ZL prefix worked on a different band counts as a different unit). NOTE: Oceania stations are those which qualify as Oceania for WAC.

5. Ciphers: Five or six digit numbers composed of the RS/T report plus a three digit sequence number beginning at 001 and increasing by one for each QSO on that band



## INTERNATIONAL TRAVEL HOST EXCHANGE

The number of participants in the IARU International Travel Host Exchange program is expanding. The latest list received from the ARRL International Programs Manager, Naoki Akiyama J1VRCJ, is printed below.

Members of the ITHE program are willing to either exchange accommodation or to host visiting amateurs if you would like to participate in this program or desire further information, please write to the Federal Secretary, WIA, PO Box 300, Caulfield South, VIC, 3162

### Australia

William Wells VK1WB<sup>2</sup>

Enrico Schreiner OE1EQW<sup>2</sup> Mr and Mrs Horst Sommer OE3ODW and OE3YTW<sup>2</sup>

### Canada

Kenneth Pineo VE1BAK<sup>2</sup> Mr and Mrs John Frankl N VE2EDN and VE2EDQ<sup>2</sup> Tom Kennedy VE3NK<sup>2</sup> Mike Goldstein VE3GF<sup>2</sup> Mr and Mrs Vye Corbin VE3FLS and VE3FLP<sup>2</sup> Blair Shaw VE3AGH<sup>2</sup> Arnold Rivett VE5AXB<sup>2</sup> George Czerany VE7CIZ<sup>2</sup> John Foss VE7ML<sup>2</sup>

### France

Guy Legenrode F6GRU<sup>2</sup> Alain Blignon F6GWX<sup>2</sup> Germany (FRG)

Heinz Lange DL1CJ<sup>2</sup> Heinz Reese DJ2EA<sup>2</sup> Herko Damm DL9FA<sup>2</sup> Hedwig Chemelewski DG4MCT<sup>2</sup> Gerhard Eberlein DF2NR<sup>2</sup>

### India

M.G. Karnik VU2CK<sup>2</sup> Joyseer Mukherjee VU2JBB<sup>2</sup> Mukesh Chandra VU2MCC<sup>2</sup> V Natraj VU2RNY<sup>2</sup>

### Japan

Kaoru Oeda JA6PRM<sup>1/2</sup> Tetsuo Okazawa JH1FLS<sup>2</sup> Katsumi Kosugi JH1QJZ<sup>2</sup> Tomio Shimada JA1SW<sup>2</sup> Tetsuji Yamada JA1EOZ<sup>2</sup> Mariko Ichikawa JPT1VC<sup>2</sup> Nagao Ogawa JF1UFX<sup>2</sup> Tatsuru Inoue JP1CHT<sup>2</sup> Kazuhito Tokuda JH1GDZ<sup>2</sup> Hidemitsu Katsura JH1UTS<sup>2</sup> Htoshu Oyama JH1AAZ<sup>2</sup> Masao Kawakami JH1NXS<sup>2</sup> Mitsuo Ogura JH1CXW<sup>2</sup> Takuha Hayashi JH1NH<sup>2</sup> Kenichi Morimoto JA1GAL<sup>2</sup> Yutaka Sakai JF2GAE<sup>2</sup> Shinichi Ohkawa

6. Logs: Separate log sheets should be used for each band and for SSB/CW.

Logs should show: Date, Time in UTC, Call of

Station Worked, Ciphers sent and received.

Underline each new VK/ZL/O prefix.

State QSO points claimed for each band.

State VK/ZL/O prefix claimed for each band.

Attach a Summary Sheet showing: Call Sign, Name, Address, Total QSO points Claimed on all bands, Total VK/ZL/O Prefixes Claimed on all bands, Total Points Claimed and a declaration stating that all rules were observed.

Logs should be posted to NZART Contest Manager, ZL2GX, 152 Lytton Road, Gisborne, NZ, to arrive prior to February 15, 1987.

7. SWLs: A VK/ZL/O station must be heard in a contest QSO. Logs are to be set out as for the transmitting section.

8. Awards: Separate awards will be issued for SSB and CW

a. A plaque for the top scorer in each continental area.

b. Special large coloured certificates showing Mount Cook (New Zealand's highest mountain) will be awarded to the top scorers in each country.

c. Participation certificates will be issued to all other on request — one IRC for postage please. A copy of relevant results are available upon request — one IRC please.

### FOR VK/ZL STATIONS

Check with overseas rules. Rules 1, 2, 5, 6 as for Overseas Stations. Exception... Rule 6.

3. VK/ZL stations are permitted to contact each other only on 160 and 80 metres. VK/VK, ZL/ZL and ZL/VK contacts are all permitted on these two bands.

4. Scoring: Different points are allocated for contacts on different bands as follows

|            |             |
|------------|-------------|
| 160 metres | — 20 points |
| 80 metres  | — 10 points |
| 40 metres  | — 5 points  |
| 20 metres  | — 1 point   |
| 15 metres  | — 2 points  |
| 10 metres  | — 3 points  |

TOTAL SCORE will be the total QSO points multiplied by the total number of prefixes worked. The same prefix worked on a different band is counted

NOTE: K1, W1, AA1, N1 etc are all different prefixes. W1AAA5 would count as W5 and not as 5.

6. CHANGE logs to arrive by December 5, 1986.

7. SWL Section: As for overseas but VKs must hear and log ZL or other stations (no VK stations).

ZLs must hear and log VK or other stations (no ZL stations).

VKs must hear and log ZL or other stations (no VK stations).

8. Awards: Separate awards will be issued for SSB and CW

a. Trophies to be announced by NZART and by WIA.

b. Special large coloured certificates showing Mount Cook will be awarded to the top scorers in each prefix area and to the top scorers on each band.

c. Participation certificates will be issued to all other on request — one IRC or 50 cents for postage, etc.

73 and good operating  
Joak White ZL2GX  
NZART Contest Manager



## International News

JH2SGC<sup>2</sup> Yukio Sugimoto JA2AJF<sup>2</sup> Yasuyuki Suzuki JR2BE<sup>2</sup> Ryuchi Sekai JA2GSG<sup>2</sup> Kiyotaka Higashira JA2TT<sup>2</sup> Tsunemitsu Yagi JG2DE<sup>2</sup> Ichiro Hoashi JA2WY<sup>2</sup> Mr and Mrs Masatoshi Yasuda JE2HCK and JF2JFY<sup>2</sup> Tetsu Harada JF2NNE<sup>2</sup> Tateyoshi Nakai JA3H1Y<sup>2</sup> Takashi Oki JA3BL<sup>2</sup> Masao Sano JE1NHFF<sup>2</sup> Masao Mochizuki JLT31A<sup>2</sup> Akiko Nakatani J33CYH<sup>2</sup> Hiroshi Tsuji JG3RPS<sup>2</sup> Sadao Ikeda J3UJ1Y<sup>2</sup> Taduo Mikado J3SENR<sup>2</sup> Kiyotaka Katsushima JE4CCH<sup>2</sup> Shigeru Ueda JA4OZ<sup>2</sup> Masayo Kurokawa JFSMVX<sup>2</sup> Kunihiko Furumi JA6CNU<sup>2</sup> Gen'ichi Sato JA6BMB<sup>2</sup> Akira Furukawa JG6FAJ<sup>2</sup> Keiichiro Imamura JA6GW<sup>2</sup> Ichio Mukai JE6VKC<sup>2</sup> Toshiohiko Ito JH6JTE<sup>2</sup> Koichi Osaki JA6ERV<sup>2</sup> Takashi Tomoyama JA6LDL<sup>2</sup> Tetsuko Shirakawa JF7STU<sup>2</sup> Naoki Sato JA6JLE<sup>2</sup> Yoshiki Matsuzaki JH8AT<sup>2</sup> Etschi Takahashi JA9OVX<sup>2</sup> Ryu Fukuda JA9CCG<sup>2</sup> Shin'ichi Watanabe JA0DA<sup>2</sup> Hirokazu Mureta JH0KJM<sup>2</sup>

### Ireland

Liam Lyons EI2FB<sup>2</sup>

### Italy

Mario Gori IV3KMC<sup>2</sup>

### Malaysia

E Munroe 6Y5EE<sup>2</sup> W Bethune 6Y5C<sup>2</sup> G McDowell 6Y5MC<sup>2</sup> Riaz Ahmed 6Y5NR<sup>2</sup>

### Nigeria

A J Oakley SZ4JF<sup>2</sup>

### Spain

Garcia Barak TP8CF<sup>2</sup>

### Sweden

Wulter Benjamin EL2BA<sup>2</sup>

### Netherlands

J H Molken PE1INS<sup>2</sup> H van Oosterhout PA3AWV<sup>2</sup> A H Proeme PA0MMA<sup>2</sup>

### New Zealand

Mr and Mrs Dave Johnston ZL1AMN and ZL1ALF

### Sri Lanka

Wally Schramm 9L1FC<sup>2</sup>

### Switzerland

Gunnar Eriksson SM4GL<sup>2</sup> Bernd Endermark SM5BST<sup>2</sup> Pekka Vuorio SM7QOV<sup>2</sup>

### Switzerland

Mr and Mrs Joerg Meier HB9CBQ and

HB9CKS<sup>2</sup> Mr and Mrs Kurt Kruel HB9CVF and HB9SNQ<sup>2</sup>

### Syria

Technical Institute of Radio YK1DP<sup>2</sup>

### United Kingdom

Robert Haselwood G4UY<sup>2</sup> Sam Kannard G4OYH<sup>2</sup> T Owen G4PSH<sup>2</sup> Elaine Green G4OYH<sup>2</sup> Chesnut and District Amateur Radio Club G4ECT/G6CR<sup>2</sup> Roger Brown G3LQ<sup>2</sup> Richard Schiller G4WTG<sup>2</sup>

### United States

Mr and Mrs Phillip Sager WB4FDT and KB4MBF<sup>2</sup> David Chase KA1UIC<sup>2</sup> Richard Baldwin W1RU<sup>2</sup> Jim Fitton W1FMR<sup>2</sup> Georges Vedia KA1LOQ<sup>2</sup> Harold Ross KA1JUI<sup>2</sup> Richard Marsino Jr, Mr and Mrs Edwin Pores WA2ZBV and WB2URP<sup>2</sup> Mr and Mrs Herbert Sweet K2GBH and WA2KCL<sup>2</sup> Alvin Peachman WB2NFD<sup>2</sup> Lynn Finch W2MSJ<sup>2</sup> Mr and Mrs Anthony Fiala K3WY<sup>2</sup> Leon Hance W4YFZ<sup>2</sup> Bruce Butler Jr W4RFR<sup>2</sup> Mr and Mrs Stephen Gross N4PZ<sup>2</sup> Ne Foster K4AMJ<sup>2</sup>

Robert Foy WA4LLZ<sup>2</sup> William Wiggins N4BMR<sup>2</sup> Wilbur Woodruff N4KEY<sup>2</sup> Carol Garner N5FYZ<sup>2</sup> Mr and Mrs AJ Markwardt W5PWX<sup>2</sup> Jackson Daugherty N5FKE<sup>2</sup> Mr and Mrs Monty Bancroft WBUNW<sup>2</sup> Mr and Mrs Jim Price K6ZH and N6KIM<sup>2</sup> Mr and Mrs Nick Hance K6PDE and K6SYB<sup>2</sup> Ross Forber WB6GJ<sup>2</sup> Earl Brownell K6BEBZ<sup>2</sup> Scott Rathert W7SWG<sup>2</sup> Mr and Mrs James Eldredge K8TJ<sup>2</sup> Roy Blankenship W8LRT<sup>2</sup> John Tiernan KA8LNC<sup>2</sup> Jack Allen ND7MP<sup>2</sup> Mr and Mrs Alan Rosel K07B and Joe Freni W7Gy KA7TWO<sup>2</sup>

K7OEV<sup>2</sup> Mr and Mrs Austin Quinn WB85XM and KA8LMF<sup>2</sup> B L Wilson WA8YTM<sup>2</sup> Mr and Mrs Stuart Osmerman WA8ZPL and KA8JLJ<sup>2</sup> Alex Scherer W8EU<sup>2</sup> Rollo Brandt K9VCK<sup>2</sup> Larry Steele K0UKO<sup>2</sup> Mr and Mrs Bob Lude K9NWJ<sup>2</sup> and N0DBY<sup>2</sup> Bruce Frahm K0BJJ<sup>2</sup> Vern Skretvedt KA0EWH<sup>2</sup> Mr and Mrs Lee Bergan W0AR<sup>2</sup> Mr Ed Eichler WB0BCB<sup>2</sup>

A=Arabic, D=Dutch, E=English, F=French, Fi=Finish, G=German, H=Hungarian, Hi=Hindi, I=Italian, J=Japanese, K=Korean, N=Norwegian, R=Russian, S=Swedish, Sw=Swedish



# Contests



Ian Hunt VK5QX  
FEDERAL CONTEST MANAGER  
Box 1234, GPO, Adelaide, SA 5001

## CONTEST CALENDAR

- AUGUST**
- 2-3 Tenth WA Annual 3.5 CW Contest (Rules this issue)
  - 9-10 European CW Contest (Rules this issue)
  - 16-17 Remembrance Day Contest (Rules July issue)
  - 18-17 New Mexico QSO Party
  - 16-17 SEA-net SSB Contest (Not Official, see below)
  - 23-24 All Asian CW Contest (Rules June issue)
- SEPTEMBER**
- 6-7 Tenth WA Annual 3.5 SSB Contest (Rules this issue)
  - 13-14 European Phone Contest (Rules this issue)
  - 20-21 Scandinavian CW Activity
  - 27-28 Scandinavian SSB Activity
- OCTOBER**
- 4-5 VKZL Cossinia Phone Contest (Rules this issue)
  - 4-5 IRSA World Championship
  - 11-12 VKZL Cossinia CW Contest (Rules this issue)
  - 15-17 IRLR Anniversary CW Party
  - 18-19 1986 Fall CW Contest (Rules this issue)
  - 20-20 CARTS RTTY Contest
  - 22-23 QJ WW DX Phone Contest
  - 29-31 IRLR Anniversary SSB Party
- NOVEMBER**
- 8-9 Australian Ladies Amateur Radio Association Contest
  - 8-9 European RTTY Contest (Rules this issue)
  - 29-30 CO WW DX CW Contest

## CONTEST DISQUALIFICATION CRITERIA

A standard approach is taken to the disqualification of logs entered in all of the contests which come under the direct control of the Federal Contest Manager appointed by the Federal Executive.

A perusal of these criteria will show them to be quite fair and well thought out. They are based on those used by the ARRL in administering their contests. It is suggested that you take note of this particular issue of the magazine for reference to these general rules in the case of all contests for the ensuing year. Details are as follows:

**DISQUALIFICATION** — An entry in WIA conducted contests may be disqualified if, upon checking of logs, it is necessary that the overall score be reduced by more than two percent. Score reduction does not include correction of arithmetic errors. Reductions may be made of unconfirmed QSOs or multipliers, duplicate QSOs or other scoring discrepancies. An entry will be disqualified if more than two percent duplicate QSOs are detected as being claimed for credit. For each duplicate or mis-copied call sign removed from the log by the Contest Manager, a penalty of the deletion of three additional QSOs of equivalent value to the offending claim may be applied. The penalty will not be considered as part of the two percent disqualification criterion. If a participant is disqualified under these afore-mentioned provisions that operator will be barred from entering the contest for that particular mode in the ensuing year; eg disqualification from the 1986 RD Contest, Phone Section will prohibit an entry for the 1987 RD Contest, Phone Section. However, participation in the 1986 RD Contest's CW Section would be allowed.

Logs which are very untidy, illegible or incorrect in layout to a major degree may also be disqualified. The call signs of disqualified participants may be listed in *Amateur Radio* magazine, together with their contest results.

## SEA-net SSB CONTEST

The rules of this contest were not received in time for publication in the July issue of this column. The CW section therefore has come and gone. It is a pity that the organisers have seen fit to hold the SSB section on the same weekend as the Remembrance Day Contest, however, our contest is, from my point of view at least, the major of the two. It is held on the same weekend every year, however one cannot expect that all overseas contest organisers will be aware of that. I know there are various VK operators who join in SEA-net on a regular basis — I used to do so myself.

Anyone who wishes to try the SEA-net contest will most likely suffer severe QRM due to the Remembrance Day Contest. Last year both the SARTG RTTY and the KCJ Contests were held on the same weekend as the Remembrance Day Contest. This year I have heard nothing of either contest. With the large number of events which occur, it is quite difficult keeping track of them each month.

I do try to bring you the rules for as many contests as I can, within reason, and at times must make a value judgment as to whether or not a particular contest warrants publicity or has any major attraction for Australian amateurs.

**RULES FOR SEA-net** — In view of our close relationship with the other SEA-net countries, here are the details of the SEA-net SSB Contest — perhaps next year the two will not clash!

**TIME** — This has not been quoted in the rules which I have to hand. The date is August 16-17 and I would suggest that you may be able to sort out this problem by contacting some stations in the SEA-net area.

**OBJECT** — Is to contest stations within the SEA-net area. The same station may be worked once on each band. Cross-band or Cross-mode contests are not allowed. Multi-operator stations are limited to one signal during the same time period.

**CLASSES** — Single operator, single and all band, and multi-operator all band only.

**EXCHANGE** — RST, plus a three figure QSO number starting with 001.

### SCORING

Stations outside SEA-net area: Contacts with stations within the net area with the following prefixes — 20 points on 160; 10 points on 80 and 40, four points on 20, 15 and 10 metres. Prefixes: DU, HS, YB, 9M2, 9M6, 9M8, 9V1, V85. Contacts with stations outside the net area: 10 points on 160, five points on 80 and 40; and two points on 20, 15 and 10 metres. Contacts between stations outside the net area have no value. There is a multiplier of three for each net country worked.

Stations within SEA-net area: Contacts with stations outside the net area — 10 points on 160, five points on 80 and 40, two points on 20, 15 and 10 metres. Contacts between stations within the net area: six points on 160, three points on 80 and 40, one point on 20, 15 and 10 metres. Contacts with stations in own country have no value. There is a multiplier of two for each net country worked, and three with country outside net area.

**FINAL SCORE** — Total QSO points times the sum of the multiplier.

**AWARDS** — The three highest scoring stations on CW and on SSB will receive plaques. There are other awards for each class.

Entries must be received no later than October 30, by the CEBU Amateur Radio League, PO Box 304, Cebu City, Philippines 6401.

**SEA-net AREA PREFIXES** — A35, A5, AR, BV, BY, C21, DU, FK8, FR, FWB, HL, HS, H44, JA, etc, JDI, KA, KG, KH2 to KH0, K06, P29, S2, S79, T2, T3, VK, all, VQ9, V85, V96, V12, VU7, XZ, XE5, X302, X57, 5W1, 6Z7, 9M2, 6, 8, 9N1, 9V1 and 129.

As Federal Contest Manager, but that I have a duty to not only make out rules, check logs and carry out all the other mundane tasks which are

the lot of the Contest Manager, I believe that I must undertake other activities in connection with this office.

The Contest Manager should do as much as he can towards becoming the recognised expert on contesting in its various forms. He should be available as a resource to other officers of the Institute and be able to provide sound and informed advice when it is needed.

Such matters as helping to formulate policy, making suggestions as to what actions should be carried out to improve contesting — for the benefit of all amateur radio operators, corresponding with others, including the Federal Office and Councilors, and doing my best to promote discussion amongst members on contest matters are all part of this approach.

In these notes you will read of another opinion on contest matters and also some personal opinions of my own. I would like to see this column become a forum for informed and logical discussion of contest matters and other subjects allied to amateur radio, apart from the privilege we have of expressing opinion through *Over You*!

In line with the approach just outlined, in late May I circulated a Discussion Paper dealing with various aspects of VHF/UHF operation in contests. I now provide a copy of that paper with the intent of keeping you better informed as to what is going on with the Contest Manager and what is being suggested. Copies of this paper were forwarded to all Federal Councilors and the Federal Executive.

## VHF/UHF ASPECTS OF CONTESTS — A DISCUSSION PAPER

It is suggested that we look at the history of contests within Australia and see just what has occurred with regard to VHF/UHF participation.

**NATIONAL FIELD DAY**

Following WWII, this contest was instituted with HF operation being utilised. Later as VHF operation became easier to achieve and thus more popular, such operation was advocated. Problems have existed with this situation and various attempts have been made to overcome them.

As VHF was obviously not a popular aspect of the Field Day, I deleted the VHF-Only Section from the contest. At the same time, I made an attempt to attract more operators to VHF by including a provision for multipliers for distance worked on VHF. I received a fair amount of criticism for this approach, which, upon consideration, was possibly warranted. I then modified the rules by reinstating VHF as a separate section. The application of multipliers for distance concept was retained. This resulted in a minimal increase in entrants in the VHF section.

Thus it can be seen that problems exist with VHF inclusion in this contest and that the action taken does not solve the problems that exist.

### REMEMBRANCE DAY CONTEST

This contest was inaugurated as an HF contest only. VHF was added. Now HF and VHF are separate categories. This approach may have solved the difficulties which have existed although there does appear to be less interest from VHF-only operators in this contest.

This contest should remain as it is, at least for the present.

Ron Henderson VK1RH, is currently looking at some of the other aspects of this contest.

### ROSS HULL MEMORIAL CONTEST

This contest is held during the summer period in which the best VHF/UHF propagation conditions may be expected. It is a general contest. It receives very little support.

It basically only exists as an exercise for home stations which are highly specialised in the field of VHF through to microwave frequencies. These stations are generally fairly elaborate with large antenna systems and a wide range of equipment. The contest in its present form is virtually an "elitist" contest.

There have been many changes to the rules over a period of years in attempts to make it more attractive. Such attempts have resulted in still no support for this contest as well as severe criticism of the various Federal Contest Managers concerned.

There have been many complaints received regarding the unfairness of the rules and scoring systems, that it is biased towards particular geographic locations, is only for specialists and operators who can devote days of operation to the contest, etc. etc.

The Federal Contest Manager has suggested in his report to the 1985 and 1986 Federal Conventions that consideration should be given to dissolving the Ross Hull Memorial VHF/UHF Contest in view of the minimal support received. It is understood that Joe Gellison VK7JG, who is the VK7 Federal Councillor, may be looking at this problem.

#### SUGGESTION

I would suggest that difficulties mentioned above could be overcome by completely changing the approach to VHF/UHF Contest Sections as follows:

1 Delete VHF from the John Moyle Memorial Field Day Contest altogether.

2 Delete the Ross Hull Memorial VHF/UHF Contest from the calendar in its present format.

3 Implement a totally separate VHF/UHF Field Day Contest (ARRL and RSGB do this) and use this as a basis for the Ross Hull Memorial Contest.

This "new" contest should appeal to the majority of keen VHF operators and contesters and would allow entrants to participate on any scale they wished. The contest would be renamed the Ross Hull Memorial VHF/UHF Field Day.

This document is circulated at this stage for discussion purposes and comment only. It is proposed also that details of this paper be included in the Contest Column in Amateur Radio magazine so as to allow as wide a discussion as possible to take place.

Signed: Ian J Hunt VK5QK  
Federal Contest Manager

May 28, 1986.

I intend from time to time to feature a letter from a member who has written to me on the subject of contests. In this way I hope to encourage a wider discussion of the subject and to give members of benefit to us all. If you have any ideas along contest lines which you wish to air just drop me a line. If you can also provide a photograph of yourself and/or station that would be of interest too.

This month I have provided such a feature with Tom VK4OD, being the intrepid writer. Many may know Tom better under the call sign VK4OD. He has been a very keen contestor and has done very well over the years that he has been operating. Congratulations on your new call sign, Tom.

Tom's letter is virtually self-explanatory and he quotes as follows:

"I would also like to comment about Bob VK7NBF whose letter you discussed in AR, May. I must support him in one sense or the CW part. It is not helping the CW Novice in a contest with only 10 kHz for CW and usually up here there are a couple of Taiwanese fishing boats with S9 signals in that segment! I would like to see — and I have said this before — that Novices on CW be allowed for the contest only a bit larger segment of the band — say 3.520 to 3.540 MHz or something of that order.

"However, I cannot agree with his assertion that full calls with 100 watts tend to blot everyone out. I have been on most Novice contests for five years on 80 and CW, with good success on CW and have found very few full call stations giving any trouble — not too many on. I get plenty from Alan VK4VAT, with his big country antennas and 30 watts! Hi (Mind you, he probably curses me too).

"The only other comment which comes to mind and also one which I have spoken out about before is the WIA rule. "Use our bands or lose them". Well, any evening the Novice Section of 80 meters is bedlam, but from 3.625 right up to the DX-window there are hardly any stations. There is



Tom VK4OD ex-VK4NUN. Tom's wife suggested when she took the photograph: "Put your fist on the key, 'cos its never off it!"

plenty of intruders — well not exactly — but there is tons of room for pleasant QSOs. I would say from my observations, that about half the stations in the Novice Segment are full call operators, which is only understandable with the number of club, award and special call nets, in which both class of licensee naturally partake. Hence, the same old story: a bit more space to encourage the Novice Operator."

Tom then goes on to comment about the 21 MHz band where the American Novice can go down to 21 100 MHz. "This section, 21.100 to 21.125 MHz, was, and still is, virtually devoid of any VK operators."

He continues regarding this band: "About five years ago, my club — the Sunshine Coast ARC — put a motion to the then WIAQ Workshop, proposing that Novices on CW be given another 25 kHz down to correspond with the American Novice Section. This was carried, I think by 14 to 5 in favour, but was then thrown out by the Federal Convention."

"Okay Ian, you asked for feedback and you've got it! I know that CW is not very popular with newer guys but I also think the small space on 80 meters is a bit of a deterrent, too."

Well, there you are, Tom has had his say in this month's column. I wonder if others of you have like opinions or whether you may be inclined to disagree. No matter what, I would point out that it is up to you to raise matters such as these for discussion, take them to your clubs, workshops, and Divisions. If you feel that you are right you will finally win your point if you can present a proper and fair argument for your cause. Again, I emphasise that you should go about such things in the right way. I find myself most critical of those amongst us who just sit back and whinge, saying that the WIA should do something about it, when those complaining are not prepared to go to the smallest effort to try and solve their own perceived problem.

In many cases, I suspect that these persons squealing about matters are not even members of the Wireless Institute of Australia, but still expect our national organisation to do all that it can to protect them and their precious rights. In other cases, they are persons with a vested interest, in one way or another, in stirring up strife and banter on criticism of the WIA to serve their own ends, or for some form of nefarious gain. It is really time that the majority of united amateurs in this country, and by that I mean the majority united within the nationally recognised organisation, made it quite clear that they will not stand for

fragmentation of the amateur fraternity/society which can be brought about by selfish and introspective attitudes being shown in some members.

It is about time that those who are not members of the WIA woke up to reality. It does no good for them to think that they are so in the right that they can go to the authorities pretending that they represent the amateur service in this country.

There are those members who unfortunately are not really loyal to the organisation but utilise their membership for mere personal or political benefit. Such persons seem also to think that they have a right to demand that the WIA follow certain courses of action. It would seem to me that, whilst some of these types probably feel justified in what they do, it is unfortunate that they are often the young and relatively inexperienced or only relatively new to the WIA in terms of years of membership.

I would contrast such individuals with such as G Maxwell Hull or George Luxon, well-known names to those who are informed in Institute matters, who have faithfully played their part over many years. I would repeat my recent comment that accept that the WIA is not perfect as an organisation, however, the best way to make a real contribution to our hobby is by being or becoming a member and working through the existing forums of the organisation which has served us well for many years. Change things if you will, but do it in the manner and your efforts will be rewarded with the result of having done something which will be seen always as worthwhile.

I would make yet one other plea, and that is — when you do attempt to place what may seem to be facts before other people, you check them out carefully first before bursting into print or putting out such information over the air. There are too many cases I have noted of not only inaccuracy, but downright deception and distortion of the truth. Some of this may be caused by ignorance of the true facts although even that cannot be condoned or excused. In other words, do your homework first!

Well, that should be enough of the "soap-box" approach for now. I do admit that I feel strongly about our hobby and the need for us to be united in our efforts, having my comments written along these lines. Also feel strongly about morality and truth. Too often these values are sacrificed for commercialism and expediency.

#### HF CONTEST CHAMPIONSHIP

I have not been providing progress scores for this competition due to the limited amount of time available to me. My personal feeling is that where operators are very competitive and have an interest in how well they are going in the competition, they will already have a fairly good idea where they stand. I therefore prefer to wait until all the contest results are available. The results of the 1985 Championship have not yet been announced as I am still awaiting the publication of the results of the VKZL Contest for 1985. Until I have these I cannot finalise this matter, so please bear with me.

In my report to the Federal Convention I recommended that there should be two trophies for this competition, namely, one for the champion phone operator and one for the champion CW operator. That recommendation was accepted by the Federal Convention and I would expect that a new trophy should become available so that this decision can apply to this years (1986) event.

Amongst my recommendations to the Convention was that the current trophy be refurbished. This trophy was originally presented to the Institute by Peter VK4PJ. It is silver plated and has been lacquered to protect the plating. Such an approach is okay to a degree where the trophy is not handled or moved about very much.

The ravages of time have had their effect on the trophy and its appearance has deteriorated through no fault of anyone in particular. I have refurbished this trophy with originally plated and have been advised that this recommendation was agreed to. (It might interest you to know that, generally speaking, gold-plating is cheaper than silver-plating and produces a more durable and attractive finish not normally requiring attention,

apart from the odd wipe with a soft cloth).

I also made the recommendation to the Convention regarding the rules for the HF Contest Championship. The rules, up until now, have been very broad and could have been applied in a number of different ways. To overcome some of the problems which existed and to ensure that the application of same would be consistent and unambiguous, I provided a set of proposed rules. These were adopted by the Convention with little amendment. I feel sure that the majority of you will agree with the Federal Council and will find the rules to be fair to all operators. I now provide you with the details as follows.

#### HF CONTEST CHAMPIONSHIP RULES

This contest championship competition will be conducted on an annual basis.  
To be eligible for the competition entrants must have entered at least three of the four HF contests sponsored by the Wireless Institute of Australia each year.

A perpetual trophy will be awarded to the entrant with the greatest number of points gained under the terms listed above. The call sign of the winning operator will be inscribed on the trophy. A replica trophy will also be presented to each annual winner for his/her retention.

The four contests concerned are as follows:

John Moyle Memorial Field Day Contest  
Remembrance Day Contest  
VK Novice Contest  
VKZL Contest

Points towards the trophy competition will be awarded on the following basis:

For the top 10 scorers with 10 points for the highest score down to one point for the tenth position.

The points are to be allocated on a State basis. (Awarding points on a State basis overcomes any unfairness due to geographic/proagation advantages which may exist).

Points will only be allocated where five or more entries exist in any State.

Points will only be allocated where the score is equal to at least 25 percent of the average of the top scoring log from each State.

(Please overcome the problem where only one 'token' entry appears for a particular category/region from any State).

Points for the John Moyle Memorial Field Day Contest will only be allocated to stations which actually operate "in the field"; i.e. Home Stations in the Field Day Contest are not eligible for points.

Club or Multi-operator stations are not eligible for points.

Points in the VKZL Contest are awarded for the total score on Phone or CW. They are not awarded on an individual band basis.

In the event of a tie, joint champions will be declared.

#### CERTIFICATE

It was during last year that I was able to catch up on the backlog of certificates. Since then, making out of certificates has again fallen somewhat behind. You might remember that I referred in this column to the splendid work done by a work-friend, Florence Mudie, who has hand-lettered all the certificates for me. Following my catching up on the backlog, I made a suggestion to the Federal Office that our President could perhaps show our appreciation to Florence for her work by way of a letter of thanks. Once this was done, I felt clear to present Florence with my request for more of her kind assistance. (She had in fact offered to help, in any case).

I can report that the matter of outstanding certificates is in hand and I will be sending them out as soon as they become available. You will realise that with them being individually hand-lettered it does take some time, however the results are certainly worthwhile.

Once again, I would like to record my personal thanks to Florence for her kindness in this matter.

#### JUBILEE 150

You have no doubt read, or heard, about the J150 Award which can be gained by working the required VK5 stations and amassing the needed points to gain this award. With the year half-way through, this award seems to be quite popular and

what it is not regarded as a "contest", one could be forgiven for mistaking some of the operations as being somewhat contest orientated. There is rather a lot of fun attached to gaining this award. You need only listen to the nightly dog-piles appearing on the Jubilee band frequency on 80 metres (3.586 MHz) to see what I mean. Might I suggest this activity to you.

It does not take too much to qualify once you catch up with some of the triple-certificate holders of the award, who can give out 46 points per contact per band. You can soon find yourself in a position to be able to help by giving out points to DX stations who, after they have the award, can then carry on with helping others in their turn to qualify.

Personally, I am finding this particular approach to an award, which is certainly a new way of doing things and which might catch on elsewhere, almost as much fun as straight contesting. Anyway, give it a try for yourself.

#### CLASHING CONTESTS

I recently received a telephone call from Don VK5NOD, who pointed out an anomaly in my note in the June column. In the Contest Calendar I had about the All Asian Phone Contest as being held on June 14-15, while the rules printed in the same issue showed the date for the contest as being June 21-22. Whilst I apologise for this anomaly, I also plead "Not Guilty". The dates in the Calendar were obtained from material supplied to me from overseas whilst the rules were placed in the magazine directly by having been sent to Melbourne for publication. It is somewhat large task to keep track of the dates for all contests, however we try to do our best for you. I do trust that nobody has been greatly inconvenienced by this occurrence. In any case, we do again apologise if such did occur. I thank Don for bringing this to my attention.

The matter of contests clashing could be referred to at this time. The VK Novice Contest was scheduled for June 21-22, and has thus possibly clashed with the All Asian Phone Contest. It is necessary for me to set the dates for our contests each year not much later than the middle of the preceding year. In setting dates I try to ensure that our contests do not clash with other major overseas events, however I may not always be able to achieve this aim. I quite often do not know just which weekend other organisations will choose for their contests, thus matters are made somewhat difficult. In the instance referred to above it is quite likely that selecting which weekend on which to run the particular contests may have become complicated due to the fact that the month began on a Sunday.

The All Asian Phone Contest is usually held on the third weekend of the month and I possibly took the weekend of the 22nd to be the fourth weekend, which I believe would be the correct approach (Or would it?). In any case, we can only try and do our best for you. If there is some other convenient way to sort out the mess of contests, I would like to know what it is?

Well, I believe that is enough of my dissertations for this month. I wish you all the very best for now. 73 de Ian VK5OX

#### QRP ARC 1986 FALL CW CONTEST

This contest is held from 1200 UTC Saturday, October 18, 1986 to 2400 UTC Sunday, October 19, 1986. Participants may operate a maximum of 24 hours.

Members give RST, State/Province/Country and QRP ARC membership number. Non-members give RST, State/Province/Country and power output.

Stations may be worked once per band for 80 points.

Each member contact is five points, regardless of location.

Each non-member contact, on the same continent is two points.

Each non-member contact, different continent is four points.

Multipliers: S/P/C: The US and Canada do not count as countries (point States and Provinces only for W/V/E). S/P/C may be worked once per band for S/P/C multiplier credit. Add S/P/Cs separately for each band, one point each, then add up S/P/C points for all bands to arrive at the

total S/P/C multiplier Power:

4-5 watts output x 2  
3-4 watts output x 4  
2-3 watts output x 6  
1-2 watts output x 8  
Less than 1 watt output x 10

More than five watts output will be counted as check logs only. The highest power used for any contact, any band, will determine the multiplier to be used for scoring the whole log.

Bonus multipliers apply for natural power (solar, wind, etc.) — with or without storage x 2. With storage, storage cells must be charged by the natural power source within 48 hours preceding the start of and/or during the contest. Battery power x 1.5. No other source of power may be used at any time during the contest to qualify for these multipliers.

Suggested frequencies are 1.810, 3.580, 7.040, 14.080, 21.060, 28.080, 50.360, 3.710, 7.110, 21.110, 28.110 MHz (please note that some of these frequencies are outside the VK allocation). No 30-metre (10 MHz) or 12-metre (24 MHz) contacts will be counted.

Call CQ CQ QRP DE (Call Sign)

Scoring: QSP points (total all bands) times S/P/C multiplier (remember, a S/P/C may be worked on one band only and only once on each band for S/P/C multiplier point) times power multiplier times bonus multiplier (if none, use 1) equals claimed score. Use of the scoring summary sheet will help avoid errors, summary sheets may be obtained by sending a large SAE and IRCs to the contest chairman.

Separate log sheets for each band is suggested for use of scoring. Send full log data plus separate worksheet showing details and times off-air. No log copies will be returned. All entrants desiring results and scores please include a large SAE and IRCs. It is a condition of entry that the decision of the QRP ARC contest chairman is final in case of dispute.

Certificates will be awarded to the highest scoring station in each S/P/C with two or more entries. In addition, Adrian W6WSP is sponsoring a special Milliwatt Certificate to the highest scoring station in the less-than-one-watt category, provided there are two or more entries in that category.

Logs must be received by November 19, 1986. Log sheets and certificates that are missing information will be used as check logs. Send logs to: QRP ARC Contest Chairman, Eugene Smith KASNLV, PO Box 55010, Little Rock, AR, 72255-0010.

#### THE TENTH WEST AUSTRALIAN ANNUAL 3.5 MHz CW and SSB CONTESTS

##### Transmitting and Receiving

DURATION CW — Saturday and Sunday, August 2 and 3 SSB — Saturday and Sunday, September 6 and 7 On both days between the hours of 1100 and 1300 UTC, i.e. five operating hours in all for each contest.

FREQUENCIES All contacts to be made in the 3.5/3.7 MHz band using frequency allocation applicable to your licence conditions.

CALLING Stations will call CQ WAA using the three times three technique, infringement of this rule by the use of long CQ calls may entail disqualification by self pre-arranging of a QSO.

SCORING Points for contacts are as follows.

Within Western Australia

WA to all Mainland Eastern States  
WA to VK7  
WA to VK7 and Overseas

Stations other than WA  
three points per contact with WA stations only.

MULTIPLIERS A multiplier of two per Western Australian Shire worked will apply to the final score. For Western Australian stations north of the 26th parallel a multiplier of 13 per contact confirmed.

COUNTS Stations may be worked twice on each night, i.e. once between 1100 and 1300 UTC and again between 1300 and 1330 UTC. These



contacts will count for points. Each time the contact for WA stations will take the form of an exchange of five characters comprising RST and Shre letters, e.g. a station in Northern sends 579NM or if in Harvey 579HY, this helps towards the Worked All Shires Award. Eastern states and overseas stations will send RST plus a running number starting at 001.

**LOGS** Contest logs are to be set out on one side of a quarto or foolscap sheet with columns headed as below.

| DATE:      | CALL:       | OPERATOR:        |
|------------|-------------|------------------|
| TIME       | CALLIST RST | SHRE LETTERS     |
| WFO OUT IN | THREE       | SEVEN MULTIPLIER |
|            |             | POINTS CLAIMED   |

Column seven to be totalled at the foot of the each page and the running totals brought forward. The last page to contain the following summary: Total number of points scored, Input power, Equipment and Antennas used, along with comments on the contest in general.

SWL participants score as above using the outgoing transmit score.

All logs to be addressed to WAA Contest Committee, 42 Kennedy Street, Melville, WA 6156 and posted so as to reach the destination not later than October 10, for both contests. The results for both contests will be published in December's issue of *Amateur Radio*.

#### SHIRE LETTERS

|                    |    |                      |    |
|--------------------|----|----------------------|----|
| 1. Albany Town     | AT | 70. Leeners          | LA |
| 2. Albany          | AB | 71. Mandurah         | MB |
| 3. Augusta         | AK | 72. Manjimup         | MP |
| 4. Amuse Margaret  | AM | 73. Meekatharra      | MT |
| 5. Bassendean      | BA | 74. Meville          | ME |
| 6. Bayswater       | BV | 75. Mandurah         | MD |
| 7. Berrard         | BS | 76. Merredin         | MR |
| 8. Boddington      | BO | 77. Mingin           | MP |
| 9. Boulder         | BU | 78. Moore            | MO |
| 10. Boyup Brook    | BB | 79. Moora            | MR |
| 11. Bridgetown     | BK | 80. Moornan          | MO |
| 12. Brookton       | BQ | 81. Mulleeburra      | MU |
| 13. Broome         | BZ | 82. Mullerwa         | ML |
| 14. Broomehill     | BL | 83. Mundaring        | MD |
| 15. Belmont        | BE | 84. Murdoch          | MD |
| 16. Bruce Rock     | BR | 85. Murray           | MY |
| 17. Bussellton     | BS | 86. Mt Magnet        | MT |
| 18. Bussellton     | BN | 87. Mt Marshall      | MS |
| 19. Carnarvon      | CL | 88. Narrogin         | NR |
| 20. Castledine     | CA | 89. Narrogin         | NR |
| 21. Carnarvon      | CM | 90. Narrogin         | NR |
| 22. Carnarvon      | CC | 91. Narrogin Town    | NT |
| 23. Chapman Valley | CV | 92. Neldandla        | NL |
| 24. Chitling       | CH | 93. Northam          | NT |
| 25. Chitling       | CT | 94. Northam Town     | NT |
| 26. Cockburn       | CR | 95. Northampton      | NS |
| 27. Collie         | CO | 96. Northam          | NS |
| 28. Coolgardie     | CK | 97. Peppercorn Grove | PG |
| 29. Coorow         | CW | 98. Persepolis       | PJ |
| 30. Corrigin       | CS | 99. Perth            | PT |
| 31. Cottbus        | CT | 100. Pingelly        | PP |
| 32. Cranbrook      | CK | 101. Plantagenet     | PT |
| 33. Cuballing      | CU | 102. Port Hedland    | PH |
| 34. Cus            | CO | 103. Quairading      | QU |
| 35. Cunderdin      | CD | 104. Ravenshoe       | RV |
| 36. Cunderdin      | CS | 105. Richmond        | RI |
| 37. Dandarup       | DD | 106. Roebourne       | RB |
| 38. Dandarup       | DK | 107. Sandstone       | SD |
| 39. Denham         | DN | 108. Serpentine      | SE |
| 40. Denham         | DM | 109. Shark Bay       | SB |
| 41. Dorrigo        | DR | 110. South Perth     | SP |
| 42. Dumbleyung     | DU | 111. Stirling        | ST |
| 43. Dundas         | DD | 112. Sullivan        | SL |
| 44. East Fremantle | EF | 113. Swan            | SW |
| 45. Elberfeld      | EL | 114. Tambellup       | TP |
| 46. Esperance      | ES | 115. Temerin         | TE |
| 47. Euston         | EH | 116. Three Springs   | TS |
| 48. Fremantle      | FR | 117. Toodyay         | TY |
| 49. Gleng          | GL | 118. Traralgon       | TR |
| 50. Glenrobin      | GR | 119. Upper Gascoyne  | UG |
| 51. Gnowingup      | GN | 120. Wattle Plains   | WP |
| 52. Gnowingup      | GM | 121. Wagin           | WG |
| 53. Gosnells       | GS | 122. Wandaring       | WD |
| 54. Gosnells       | GD | 123. Wanneroo        | WO |
| 55. Halls Creek    | HC | 124. Warona          | WR |
| 56. Harvey         | HV | 125. West Arthur     | WA |
| 57. Irwin          | IR | 126. Westonia        | WO |
| 58. Kalamunda      | KA | 127. West Pilbara    | WP |
| 59. Kalbarrie      | KL | 128. Cockburn        | CK |
| 60. Kalamunda      | KB | 129. Wiluna          | WU |
| 61. Kellerberrin   | KN | 130. Williams        | WL |
| 62. Kent           | KE | 131. Wongan Balldu   | WB |
| 63. Kojonup        | KJ | 132. Woodanville     | WO |
| 64. Koodin         | KD | 133. Wyalkatchem     | WY |
| 65. Koodin         | KA | 134. Wyndham East    | WE |
| 66. Kulin          | KU | 135. West Kimberley  | WK |
| 67. Kurland        | KL | 136. Yalgoo          | YU |
| 68. Lake Grace     | LG | 137. Yilgarn         | YU |
| 69. Laverton       | LV | 138. York            | YK |

#### EUROPEAN DX TEST

The Deutscher Amateur Radio Club (DARC) invites all amateurs to participate in this contest.

**Periods** — The contest is held over three weekends — CW: August 9/10; Phone: September 13/14; and RTTY: November 8/9 — from 0000 UTC Saturday to 2400 UTC Sunday.

**Bands** — 3.5; 7; 14; 21; 28 MHz.

**Classification** — Single operator, all band; Multi-operator, single transmitter; Multi-operator, single transmitter. Stations are only allowed to change band one time within a period of 15 minutes. A quick band-change and return for working new multipliers is allowed.

**Rest Period** — Only 36 hours of operation out of the 48 hours are permitted for single operator stations. The 12 hours of non-operation may be taken in one, but no more than three periods at any time during the contest and have to be marked in the log.

**Exchange** — A contest QSO can only be established between a non-European and a European station. Exchange the usual five or six digit serial number RST report plus a progressive QSO number starting with 001.

**Points** — Each QSO counts one point. A station may be worked once per band. Each confirmed QTC, given or received, counts one point (see below).

**Multipliers** — The multiplier for non-European stations is determined by the number of European countries worked on each band. Europeans will use the last APRL countries list. In addition each call area in the following countries will be considered as a multiplier: JA, PY, VE, VO, VK, ZL, ZS, UA50 (see special regulations for RTTY). Each Wk-state will be considered a multiplier, but no Wk call areas.

The multiplier on 3.5 MHz may be multiplied by four.

The multiplier on 14 MHz may be multiplied by three.

The multiplier on 7/42/28 MHz may be multiplied by two.

**Scoring** — The final score is the total QSO points plus QTC points multiplied by the sum total multipliers from all bands.

**QTC Traffic** — Additional point credit can be realised by making use of the QTC traffic feature. A QTC is a report of a confirmed QSO that has taken place earlier in the contest and later sent back to a European station. It can only be sent from a non-European station to a European station. The general idea being that after a number of European stations have been worked, a list of these stations can be reported back during a QSO with another station. An additional one point credit can be claimed for each station reported (note special regulation for RTTY).

(a) A QTC contains the time, call and QSO number of the station being reported; ie 1300D/DA1AA/134. This means that at 1300 UTC you worked DA1AA and received number 134.

(b) A QSO can be reported only once and not back to the originating station.

(c) Only a maximum of 10 QTCs to a station is permitted. You may work the same station several times to complete this quota. Only the original contact, however, has QSO point value.

(d) Keep a uniform list of QTCs sent. QTC 3/7 indicates that this is the third series of QTCs sent and that seven QSOs are reported.

**Contest Awards** — Certificates to the highest scorer in each classification in each country, reasonable score provided.

**Disqualification** — Unusual disqualification criteria applies.

**Logs** — Use separate sheets for each band. All entrants are required to submit cross-check (dupes) sheets for each band on which they worked more than 200 QSOs. For each contact with one's log removed from a log by the checker, a penalty of three additional contacts will be eliminated.

**Special Regulations for RTTY** — In the RTTY section of the European DX Contest also contacts between all continents and also one's own continent are permitted. Multipliers will be counted according to the European and APRL Countries List. QSOs as well as QTCs made with one's own country is not allowed. SWLs apply to the rules accordingly.

**Deadline** — CW: September 15; Phone: October 15, RTTY: December 15.

**European Countries List** — C31, CT1, CT2, LD, EA, EA6, EI, F, FC, G, GD, GI, GJ, GM, GM

Shetland, GU, GW, HA, HB, HB0, HV, I, IS, IT, JW, Bear, JW, Spitzbergen, JX, LA, LX, LZ, OE, OH, OH0, OJ0, OK, ON, OY, OZ, PA, SM, SP, SV, SV5, Rhodes, SV9, Creta, SV, Athos, T77M1, TA, European Part, TF, UA 1348, UA, Franz Josef Land, UB, UC, UN/UKIN, UO, UP, UQ, UR, Y22-99/DM, YO, YU, ZA, ZB2, 1A0, SA, 4U1, Geneva, 4U1 Vienna, SH1

**Mailbox Address** — WAEDC Committee, PO Box 1328, 0-8950 Kaufbeuren, West Germany.

## VISJSA TO CELEBRATE COUNCIL CENTENARY

John Hampel VK5SJ

16 Mitchell Street, Glengowrie, SA. 5044

The WIA SA Division will operate a Special Event Station with the theme 'Service to the Community by Amateur Radio' to mark the centenary of Marion Council, which is celebrating A Century of Service' as a Jubilee 150 event in South Australia.

The District Council of Marion was proclaimed on September 2, 1888. It has grown to a population of over 70 500, covering the south-western Adelaide suburban area with extensive industrial development on the southern boundary.

As part of the South Australian Jubilee 150, Marion is sharing exchanges of historical material and personal visits with its J150 twin town, El Paso in Texas. On September 2, and exchange of greetings on 14 MHz is planned between Mayor Rodgers of El Paso and Mayor Hodgson of Marion.

On the same day, VISJSA will be used to receive messages of congratulations from Mayors of South Australian country towns, who will speak via amateur radio through a network of VK5 stations who are co-operating in this project. These exchanges will take place on 3.500 MHz prior to the Councils Centenary Meeting in the evening.

The Special Event Station will include extensive historical displays of communications equipment and documents at the Marion Library. The organisers and the Council anticipate the operation of the station, together with static displays of various facets of the hobby, will attract attention to the roles of the Amateur Radio Service in the community.

VISJSA will operate during library hours from August 25, to September 5, 1985, Monday; Wednesday; Friday 0001-1030 UTC and Tuesday; Thursday 0001-0730 UTC. Jubilee 150 frequencies will be used; ie SSB — 3.586, 7.086; 14.186; 14.286 and 21.186 MHz. CW — 3.536, 7.036; 14.136 and 21.136 MHz. There will also be RTTY operation on 7 and 14 MHz. Local VHF and ATV will also operate.

A special JSA QSL card will be used and a Marion Centenary Award will be issued. Further details of this award will be in the Awards Column next month.

The organising committee would be pleased to hear from VK5s who would be able to assist during the operation of the Special Event Station, VISJSA.

The Marion Council Centenary J150 Amateur Radio Co-ordinator is John Hampel VK5SJ, phone (08) 295 6751.



# Australian Ladies Amateur Radio Association

Joy Collis VK2EBX  
PUBLICITY OFFICER, ALARA  
Box 22, Yeoval, NSW 2868

Well, here we are in the depths of winter definitely not the time of year for experimenting with aeriaks, etc. Never mind, we can still get the transceiver and the radio shack warmed up and find someone to talk to, even when propagation is at its lowest ebb.

## RAG-CHEWING A LOVELY WAY TO SPEND AN EVENING

A little rag-chewing on the lower bands is a good way to pass the long evenings, and it is always pleasant to meet-up with old friends again for a chat, somewhat akin to "yarning with a neighbour over the back fence."

Perhaps we YL operators do share a special bond of friendship having its roots in the days when the main YL function was to provide sustenance for the OMs at social gatherings.

Now-a-days YL participation in amateur radio is firmly established and our members are steadily growing.

## HOW DID ALARA BEGIN?

So how did ALARA, (or LARA, as it was known then) begin? I cannot vouch for the veracity of the following, and our historian, Mavis VK3KS, has written an excellent account which is doubtless closer to the truth, but it could have happened this way.

Some ladies met and said "You know it really is a bore,

To be stuck with kids and washing-up and every kind of chore

Being XYLs of amateurs is really not so good

When they are working radio while we're preparing food!

We can't beat 'em, so let's join 'em, get some action of our own,

And a group of us together can do more than one alone!"

So they formed a ladies' amateur group, and soon the OMs knew

They had competition on the air as LARA grew and grew.

Now things are very different, as all will soon agree,

And the YL role has changed a lot since LARA came to be:



So while YLs work the radio at all the social "dos" The OMs are baby-sitting while they tend the barbeques.

In case any of our long-suffering OMs feel they are getting a raw deal, I would hasten to add that we are very appreciative of their continued support and encouragement in the hobby we all enjoy — amateur radio.

## WIA ANNIVERSARY MEDALLIONS

Unfortunately, we omitted one recipient of the WIA 75th Anniversary Medallions (see June AR).

Joan Sutherland VK3NLQ, — organisation of the Bendigo Premier Town Award and running the net

Sorry about the oversight, Joan, and congratulations.

South Australian YLs get-together at the home of Meg and David, VK5AOV and VK5OV. From left: Denise VK5YL, Marlene VK5QO, Judy VK5BYL, Jenny VK5ANW, Joy VK5YJ and Meg VK5AOV.

## MEMBERSHIP UPDATE

Following are amendments to the Membership List, as printed in July AR

Associate Member for VK5 — Christine Taylor Christine is a new member and we welcome you, Christine

Associate Member for VK3 and VK8 — Rita Ashbury and Peggy VK6NKU. Both have re-joined and we welcome you both back, Rita and Peggy.

## UPDATES

Bron ex-VK3NTD/XTD is now VK3DYF and Josie ex-VK4VAN is now VK4VG. Congratulations on the new call signs. Bron and Josie,

7/3/33. See you next month, Joy VK2EBX.



During February 1986, Jenny VK5ANW, presented Marlene VK5QO, with her 75th medallion on behalf of the VK5 Divisional Council, at the home of Meg VK5AOV and David VK5OV.



Jenny VK5ANW, presents Joy VK5YJ, with her 75th medallion on behalf of the VK5 Divisional Council at the VK5 YL get-together.



— VK2COP



# Awards

Ken Hall VKSAKH  
FEDERAL AWARDS MANAGER  
St George's Rectory, Alberton. SA 5014

## AWARDS ISSUED RECENTLY

**WAVKA**  
1479 Kazumasa Kawase JG3RPL  
1480 Akiyoshi Takahashi JA7AER  
1481 Koichi Mori JH7FWA  
1482 Mamoru Wakasugi JABCAO  
1483 Eduard H Pandoe YC2AFP  
1484 Abel Suhanan YB4FNN

## DXCC PHONE

344 Bob M Iigete VK4ADZ  
345 Warren H Cure VK7GV  
346 Tom D Dowling VK4OD

## CORRECTION

The call signs of the club station for the Brisbane ARC Inc are VK4BA and VK4WIL.

## THE ARANC CAGOU AWARD New Diplome Colour

This diploma is offered to DX stations outside New Caledonia.

1. DX stations shall work six New Caledonia stations.
2. Contacts from January 1, 1972 or after are valid for this award.
3. Use any amateur band or mode.
4. Applicant shall submit normal log information. QSL cards are not required.
5. The application shall be sent together with 12 IRCs to ARANC Award Manager, PO Box 3956, Noumea, New Caledonia.

The Cagou Award will be returned by air mail. Please allow 15 days for delivery.

## SPECIAL PREFIX

To commemorate the 25th anniversary of the Amateur Radio Association of New Caledonia, all members of the club will use a special prefix during the period from August 9 to December 31, 1986 inclusive.

The prefix will be FK25.

At the same time, and for the same period, the club station will use the call sign FK25A.

In order to allow a maximum number of amateurs around the world to qualify for a commemorative award, members have pledged to be on the air as often as possible for the full period.

The club station will also be activated quite frequently.

## COMMEMORATIVE AWARD

1. PERIOD — from August 9 until December 31, 1986 inclusive. The date limit for award applications will be January 31, 1987.

2. ALL BANDS, ALL MODES — for contacts made via OSCAR-10, an individual station may be contacted more than once, but there must be 24 hours minimum between QSOs.

3. CONDITIONS —

a) Stations must make **one QSO** with the club station, FK25A.

b) OR make **three QSOs** with stations using the FK25 prefix.

c) OR have QSOs with **five stations** during the above-mentioned period, using any of the following prefixes: FK8, FK1, or FK0.

4. QSL CARDS NOT REQUIRED — a log extract certified by a radio club or two licensed amateurs.

5. AWARD PRICE — the award costs five IRCs or US\$2 for surface mail or eight IRCs or US\$3 for air mail.

6. ADDRESS — applications should be sent to: FK25A Award Manager, PO Box 3956, Noumea, New Caledonia, South Pacific.

## DIPLOME DU GABON

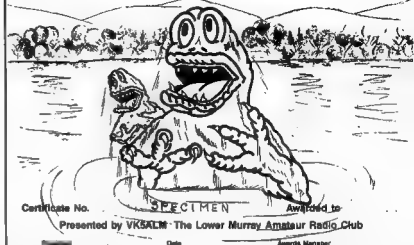
DDG1 — Confirmed QSOs with different TR stations, any mode on at least three HF bands.

DDG2 — Confirmed QSOs with 12 different TR stations, any mode on at least three HF bands.

DDG3 — One confirmed QSO on each of five different HF bands with at least two bands out of the three lower HF bands.

Minimum number of 33 or 339 will be accepted. Send GCR list of confirmed QSOs certified by two other amateurs or an official from the

# THE BUNYIP AWARD



applicants national association and 10 IRCs to: AGRA Diplom Manager, BP 1826, Liberville, Gabon.

## THE BUNYIP AWARD

The Bunyip Award is presented by the Lower Murray Amateur Radio Club.

The requirements to obtain the award are as follows:

Australian stations are to work the Club Station VK5ALM, and five club members or seven club members.

DX stations are to work VK5ALM and two club members or four club members.

Shortwave Listeners may also apply for the award.

Log to be set out with Date; Frequency; Call Sign; Name; Location.

Cost of the award is \$A2 plus a 50 cent stamp. Applications to be sent to: Awards Manager, LMAAC, PO Box 234, Murray Bridge, SA. 5253.

CLUB MEMBERS — VK5a ABW; AHK; AKC; BRS; JP; NRB; NSI; PAN; PGH; UT; YU.

## VANUATU AMATEUR RADIO SOCIETY AWARD

This award is a standard size certificate printed in the four colours of the Vanuatu flag and containing a scale map of the archipelago.

1. The award is offered to all licensed amateur radio operators who qualify.

2. To obtain this award, the amateur operator must have made not less than six contacts with Vanuatu stations carrying the YJ8 call sign who are members of the Vanuatu Amateur Radio Society. Contacts made from Vanuatu Independence Day, July 30, 1980 are acceptable.

3. Contacts may be made by CW, SSB, or RTTY.

4. Two contacts with any one YJ8 station will be accepted providing these contacts are made on different days, different bands or by different modes.

5. A log extract from the applicant showing the contacts claimed and certified by the signatures of two other licensed amateurs will be accepted.

This record will be checked with the logs of the YJ8 stations worked.

6. Endorsements for all one mode, all one band or

additional stations worked are available. Cost of the award is US\$2 or equivalent or 10 IRCs.

All inquiries and submissions should be addressed to: Awards Manager, VARS, PO Box 965, Port Vila, Vanuatu.

## HAITI FLAG DAY DX PARTY

This event was held from 0000 UTC, May 18 to 2400 UTC, May 18, 1986 with the co-operation of all Haiti amateur radio operators. For the event, Haitian stations used the prefix 4V.

The purpose of the exercise was to introduce the Haitian flag and to promote two-way contacts between Haitian amateurs and the rest of the world.

QSL cards and Flags Certificates will be awarded to stations who have contacted 10 Haitian stations using the prefix 4V.

QSLing via the bureau is essential with an IRC if possible.

Inquiries to PO Box 1484, Port au Prince, Haiti, WI.

## WIA 75 AWARD

Hasmo Soejono YC2ERJ, Certificate No 684

## DARC DX AWARDS

**General Rules** — These diplomas can be obtained by licensed radio amateurs and SWLs world-wide. All contacts must be made from the same country.

Awards for club stations will be issued to the club and not to an individual operator. The DARC DX Awards are based on the European Country List and the ARRL DXCC List. All amateur bands, for which the applicant holds a valid license may be used. A set application form for the DARC DX Awards is available for three IRCs at the address below. The use of these official forms is obligatory.

QSL cards for all contacts claimed must be submitted with the application. Any altering or forging will result in disqualification. The service charge is 10 IRCs, 10 - DM or US\$5 per award.

The cost for each endorsement is five IRCs, 5 - DM or US\$3.

All applications to DARC DX Awards, Walter Geyrhalter DL3RK, PO Box 1328, D-8950

#### Kaufburen, West Germany

New award holders will be published in *QO-DL*, the club magazine of DARC.

**European Countries List** — C31, CT1, CT2, DL, EA, EA8, EI, F, FC, G, GD, GI, GJ, GM, GN, SHetland, GU, GW, HA, HB, HB0, HV, I, IS, IT, JW, Bear, JW, Spitsbergen, JX, LA, LZ, OE, OH, OH0, OJ0, OK, ON, OY, OZ, PA, SM, SP, SV, SVS, Rhodes, SVS, Crest, SV, Athos, T77M1, TA, European Part, TE, UA 1348, UA2, UA Franz Josef Land, UB, UC, UN/UKIN, UO, UP, UQ, UR, Y22-99DM, YO, YU, ZA, ZB2, 1A0, 3A, 4U1 Geneva, 4U1 Vienna, 9H1

#### WAE (Worked All Europe)

A certificate awarded to amateur radio stations for contacts with European countries on different bands.

The WAE is issued in two divisions — **Telegraphy** (two x CW) and **Telephony** (two x SSB/AM/FM). Each European country counts one point on each band. For stations outside Europe contacts on 80 and 160 metres count two points. Maximum five bands per country can be used.

**Classes**  
WAE III at least 40 countries and 100 points.  
WAE II at least 50 countries and 150 points.  
WAE I at least 55 countries and 175 points.

(Holders of WAE I get a special WAE badge).

#### EU-DX-D (Europe-DX Diplom)

The EU-DX-D is an award that may be claimed annually. It is issued in the following classifications — **Telegraphy**; 2 x SSB, mixed modes. For the mixed class at least 30 percent of the contacts must be made in a different mode.

A minimum of 10 points is required for the EU-DX-D per year. 20 points must be obtained by contacts with European countries and 30 points by contacts with countries outside Europe. All bands can be used. Each country counts one point, on 80 and 160 metres two points. Stickers are available for each additional block of four European and x non-European points within the same calendar year.

The EU-DX-D may be claimed every year anew. Each year's score may be added to obtain the EU-DX-D 500 badge and the EU-DX-D 1000 trophy. There is no limit to the number of years.

#### Europe Diplom

The Europe Diplom is awarded for working/hearing amateurs in European countries. Applicants must prove a total score of at least 100 points.

**Annual Score** — each confirmed European country counts one point per year on each amateur band.

**Total Score** — Sum of the annual score for the year of application and the five preceding years. There is no devaluation.



#### Europe Diplom Honour Roll

Each certificate holder with an actual score of at least 300 points will be listed in the Europe Diplom Honour Roll.

The Honour Roll will be published twice a year in *QO-DL*, the club magazine of the DARC.

To improve the score QSL cards may be turned in twice a year. Make sure that the award manager receives them before June 30 or December 31 of each year to be considered in the subsequent publication.

#### Europe 300 Trophy

Holders of the Europe Diplom may obtain the Europe 300 Trophy. Applicants have to prove 300 country points when counting each country on each band only once in all the years. Servicing charge is 20.- Dm or US\$10 for the trophy when applied together with the Europe Diplom.

(Please note these rules were revised on January 1, 1984).

#### WEIC (Worked EI Counties) AWARD

The Committee of the Irish Radio Transmitters Society, have pleasure in presenting the WEIC

Award, the first award to be sponsored by the IRIS. The award may be claimed by licensed amateurs and SWLs world-wide, who have worked/heard different counties of Ireland.

In accordance with IARU Region 1 rules, a claim for the award must be accompanied by a QSO list and by a statement from the applicant's national DX-Awards Manager that states that correctly filled in QSL cards are in the possession of the applicant. If this is not possible, the applicant must submit all QSLs concerned.

Contacts on or after January 1, 1982 only are valid.

Cost of the award is 10 IRGs.

There will be no band or mode endorsements.

It is necessary to work/hear at least 20 of the 26 counties of Ireland (EI/EI) Counties are: Carlow, Cavan, Clare, Cork, Donegal; Dublin; Galway, Kerry, Kildare, Kilkenny, Laois, Leitrim, Limerick, Longford, Louth, Mayo, Meath, Monaghan, Offaly, Roscommon, Sligo, Tipperary, Waterford, Westmeath, Wexford and Wicklow.

Applications should be sent to the Irish Radio Transmitters Society, PO Box 462, Dublin 9.



# QSP

#### HALLEY'S COMET AGAIN

Further to the sightings by people who saw Halley's 1910, see page 11, June AR, I have received three more reports.

The first comes from Eric VK2NWW, who writes "... I saw Halley's Comet in daylight during 1910 from the corner of Burlington Street and Alexandra Lane, Crows Nest, NSW with the naked eye at approximately 30 degrees above the horizon in the southern sky. I was born in 1889 and remember the coma and tail was a golden colour.

"I also viewed it on March 12, this year with the aid of binoculars at 5 am, after waiting for a break in the clouds, a little south of due-east. It was greyish white in colour with the tail pointing upwards. The tail was much shorter and splayed more than on its 1910 visit and it was not visible to the naked eye.

"I had discussed it with my next door neighbour, Mrs Fleishman prior to its visit this time.

Mrs Fleishman's account is as follows "... Regarding Halley's Comet — I was 10 years of age and remember it in May or June of 1910. It was early morning, very cold and frosty, a clear sky

and the Comet was clearly visible to the naked eye. At the time I was living at O'Connell, a small village about half way between Bathurst and Oberon in NSW.

"The Comet's coma was in the southern sky and was a clear bright ball with a fan like tail that appeared to be moving in an easterly direction ...

"The third letter is from Eric VK4XN, "... If I delay any longer penning this letter, the Comet will be on its way back!

"All through the years I've had a memory of my father taking me out of bed one night in 1910, and pointing out to me this bright object spread out across half the sky. This occurred at Ravenswood, an old gold mining town in North Queensland when I was about four and a half years of age.

"According to some reports in the local paper, I wonder if some of the sightings in that period were factual or had some of the people actually seen it. One lady described it 'flashing across the sky like a meteor'.

"Even though I have an eyesight problem, glaucoma, I did get a good look at it the second time around, but what a disappointment for a lot of folks.

Well, thank you all for your interest in putting pen to paper, to allow it to be documented, so amateurs may compare it the next time it appears.

Contributed by Ken McLachlan VK3AH

#### VETEXPO AMATEUR RADIO SOCIETY

The amateur radio station exhibit at Expo 86 reflects amateur radio's unique role in providing emergency and public service communications and also demonstrates recent amateur contributions to progress in communications.

The station features many state-of-the-art technical innovations pioneered by amateur operators, including amateur satellite, amateur television, and packet data communications. More traditional modes of communications such as Morse code, voice and RTTY will demonstrate the station's theme: Communications for Everyone.

The station operates from 160 metres to 1.2 GHz daily from 1700 UTC to 0500 UTC.

Following day until October 13, 1986. CW frequencies are 3.510 or 3.710; 7.010 or 7.110; 10.105 or 10.120; 14.010 or 14.030; 21.010 or 21.110; 28.010 or 28.110 MHz. SSB 3.740 or 3.795; 7.080 or 7.155; 14.135 or 14.205; 21.135 or 21.205; 28.135 or 28.305 MHz. RTTY 3.590, 7.040, 10.140, 14.090, 21.090, 28.050 to 28.500 MHz. 7.171, 14.230, 21.340, 28.680 MHz.

VETEXPO will QSL each logged QSO via national QSL Bureaus.

Further information can be obtained from Larry Reid VE7LR, VETEXPO Operations Committee Chairman, 6915 Napier Street, Burnaby, BC, Canada V5B 2C2.



# Spotlight on SWLing

Robin Harwood VK7RH  
5 Helen Street, Launceston, Tas. 7250

As I was recently listening on the 41 metre broadcasting allocation to some international stations, I became aware of the distinctive propagation changes to signals from Europe. Around mid-winter, as I am writing this, we have excellent propagation during daylight hours, yet it is poor during the hours of darkness.

This is not surprising if you refer to the *Great Circle Map* in a previous Call Book. Long Path signals from Europe traverse across the southern end of South America. As the sun rises in Europe, one can readily follow the propagation pattern. Signals start to deteriorate, firstly in eastern Europe, going out at 0500 UTC. The further west you go, signal levels are okay until their local sunrise.

United Kingdom signals usually disappear around 0700 UTC. By now, conditions have significantly altered, as we approach our spring, and Europe their autumn. Yet, at the time as I collate these notes, the pattern is quite marked.

## SOME SIGNALS UP IN LEVEL

As signals from Europe and the Americas sharply drop at our local sunset, coincidentally Asian and North Pacific signals have come up in level. For example, the Indonesian provincial station located in Irian Jaya, which is not normally heard when European signals are on either 9.615 or 9.610 MHz, is easily heard around 0730 UTC. It varies in frequency, hovering about 9.612 MHz and is usually in Bahasa Indonesian, although indigenous languages/dialects have been heard. These are understood across the border in Papua-Nugini.

Not surprisingly, stations from Japan, Korea, China, and the Asiatic USSR are commonly heard at consistent strength. One station not normally heard in this region, because Australia is not on the r antenna pattern, is heard very well. It is Radio KNLS in Anchor Point, Alaska, whose primary targets are the USSR and China.

Listen on 11.880 MHz at 0800 UTC (11.850 at 0900 UTC), and you will hear their English language broadcasts. Programming is mainly musical, interspersed with religious "spot" announcements.

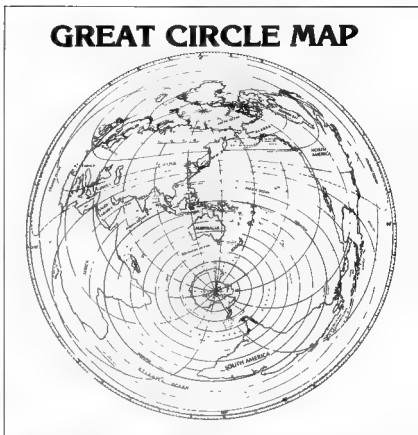
## POSTPONEMENT

The projected date for Radio NDXE commencing to broadcast has been postponed. Originally scheduled for July 4, (see *Amateur Radio*, April 1986, page 53), the commencement date has now been re-scheduled for October 15. You may recollect that mention has been made in this column, of the station's proposal to transmit in AM-sterio. Delays in obtaining the specialised transmission system has caused the postponement. NDXE will be utilising the Kahn system, while the Motorola system, which is the one used here in Australia, has become the industry standard within the States. Kahn divides the two channels into the sidebands, eg left is on lower, while right is on upper. The Motorola format is mainly done with phase-difference.

There is a big question mark on the practicability of AM-sterio on shortwave at present. There are certainly no receivers with shortwave capability at this time. It is also questionable whether AM-sterio is workable with phase distortion, multi-path, plus the heavy congestion on the HF broadcasting allocations. Most consider the use of AM-sterio by NDXE as an advertising gimmick.

## COMMERCIAL FORMAT

NDXE will be the third Stateside International Broadcasting commencing in 1986, the first, in New Orleans, was first for a decade since the station, WYNY closed down in the 60s. Today, it mainly relays programming from its parent FM-station. Revenue from religious programming at weekends just keeps it afloat. The other station, KYO, in Saipan, is readily heard in Australia. It has a pop format and is operational 24-hours a day. In



Japanese and English. It recently got into financial difficulties after the planned commercial sponsorship did not eventuate, appealing to its listeners to send in donations to keep it operational. It is still there, but for how long?

Commercial radio from a major broadcaster on shortwave does not appear to succeed. Will NDXE go the same way? Only time will tell. Incidentally, all the new private American shortwave stations mainly seem to have religious formats, the exception being NDXE.

## BEYOND THE HIF BANDS

Have you heard the "Numbers" stations around the HF bands? These, admittedly have been heard around for some time, ever since World War II in fact. Transmissions are usually on AM with someone reading out a stream of numerical groups. No identification is usually given. Languages vary, but Spanish and German are commonly heard. The consensus amongst the DX community is that they are engaged in espionage.

Operating across the entire HF spectrum at odd hours, these signals are usually heard on A3E or H3E (upper). Some maintain that they alternate the frequencies and operational times in a fairly predictable pattern. Recently, one of these stations popped up on our exclusive 20 metre allocation, 14.130 MHz at 1200 UTC. I could not readily identify the language, but surmise it was Arabic. Some DXers have done direction finding (DF) work on these signals, pin-pointing some of these to East Germany or Cuba, whilst others have been traced to the US and the Korean

Peninsula (both north and south).

## CHECK THESE FREQUENCIES

You may like to try these channels: 10.580 MHz at 0800 UTC, 8.975 at 0530, 5.250 at 0830, 13.768 at 1200 UTC, as well as keeping an eye on 14.130 MHz from time to time. The above channels are where the "numbers" stations have been previously monitored, yet they are liable to pop up anywhere at any time. Incidentally, the "number" groups are in a five-figure cipher, repeated twice. I have seen reference to enthusiasts who mainly concentrate on these sometimes elusive signals. I know that Bob Groves of Brasstown, Pennsylvania, is one well-known enthusiast.

## UNUSUAL!

Whilst we are on unusual stations, what is the station on 8.348 MHz, AM around 1000 UTC daily? Broadcasting in Korean, it has old Korean songs plus plenty of slogans. Identification is extremely difficult, but it is reportedly *Radio Echo of Hope* and located within South Korea.

The North Koreans have a well-known clandestine station on 4.119 MHz at 1200, also in Korean. Called *Voice of Re-Unification* the station has always claimed to be broadcasting from Seoul, which is in South Korea, yet monitors have heard cross-modulation from *Radio Pyongyang* in the north. It has an English program at 1400 UTC. This clandestine warfare has been going on since the Korean War.

73 — Robin VK7RH



# Pounding Brass

Marshall Emm VK5FN  
Box 389, Adelaide, SA 5001

Since writing the column which appeared last month, I enjoyed a personal visit from Syd VK3ASC, and we had a long and pleasant chat about many things, including CW and I received another interesting letter from Gordon VK1AD, much of which is worth repeating here ...

"Firstly, let's clear up the matter of the telegraphic 'laugh' ... my typewriter is one of these new-fangled electronic gadgets and has little or no sense of humour ... the laugh was dah-dah-dah-dit, the dot on the end probably wasn't apparent. It was a signal that could be sent with considerable feeling (or lack of it), depending on the quality of the joke. For a really funny remark or joke or whatever, the signal would be sent with great feeling — length of the dashes exaggerated, and a short pause after each rendition of the signal — primarily for the operator to indulge in a real 'belly-laugh' if the feeling was one of only slight amusement, the signal would be sent quickly and no pause for rolling in the aisles or anything, and then back to business.

"I am pretty sure that this signal and quite a few others (such as 73) came from the old American code. Simple numerical codes were used similarly to today's Q codes. I faintly remember seeing recently some discussion on the use of 'D' to signal urgency ... this is no doubt derived from the old signal 'B' for urgent traffic used in the American code and, of course, in practice abbreviated to 'D'. There was a code used in the old days ... '29' to indicate a message that could not be delivered for some reason, the clerk who looked after such matters was known in Australian Post Offices for many years as the '29 clerk'. The old American code was designed to save time, and even had many letters of the alphabet abbreviated, eg Y was dit-dit dit-dit, C was dit-dit dit, R was dit-dit dit, and so on. Apparently, the old-timers were too lazy to send many dashes!"

With reference to mechanical Morse, Gordon says ... it took many varied forms in this country. The type used was geared very closely to the

traffic demand on a particular circuit. Manual Morse was used on lightly loaded circuits, where usually there were several stations concentrated — this was what was called a 'closed circuit' system. On more heavily loaded circuits, duplex working was used — that is, two men at each end, one sending and one receiving simultaneously over one wire. (I still have a circuit diagram of this system, I think) ... and then a system called 'Duplex' was used where one wire was used but traffic was more or less unidirectional — that is, two men sent simultaneously in the same direction over the one wire. There was even one system where two Duplexes were duplexed — that is four operators sending in the same direction simultaneously over one wire.

"The type of mechanical Morse you were familiar with as a lad (described to Gordon in a letter) was probably the old 'Wheatstone System' — what a fertile imagination the man must have had! There was a system whereby a machine called a 'gill' was used to punch up a tape in Morse in the following fashion:

"This was sent at around 80 to 100 words-per-minute if memory serves me correctly, and was reproduced at the other end in the same fashion — that is, on a punched tape. The punched tape was then fed into a 'reader', a machine which transcribed the Morse characters as letters on a paper tape. Handling this paper tape was quite an art — one form was pre-gummed and ran over a roller picking up water from a trough beneath, one was plain tape which ran over a roller picking up gum from a trough — the beginner usually finished the day with hands, and shirt, and various other parts of the anatomy covered with icky sticky goo. However, with a little practice, a gummer could get through a staggering amount of work, and still leave most of the gum on the tape.

"There was also a system used by the NSW railways where a system of Morse and about 1940, which had a disc attached to the end of an

armature actuated by a solenoid which rotated in an ink trough and marked the paper tape with signals in dots and dashes ... when I was a lad (a Post Office Messenger), I used to confound the local darts at the railway station with my ability to read the audio signals straight from the sounder and have it done while they were still trying to read the dots and dashes transcribed on the paper tape. Ah! those were heady days."

I am sure all readers will join me in thanking Gordon for the entertaining information, and I hope there is more to come. I was particularly intrigued by the telegraphic laugh, which sounds a lot more flexible than "Hi". Come to think of it, I always did think "Hi" sounded more like a giggle than a laugh, and downright silly on phone.

On the subject of old-time land-line telegraphy, I have recently commenced an international correspondence with Tony Smith G4FAL, who is sort of an English 'opposite number' to yours truly. Tony writes a column titled *Morse Report* in *Amateur Radio* (not this one). He says there is a real resurgence of interest in CW in England, and cites an award as one of the factors — I think it might be worth borrowing the idea. It is simply a certificate awarded by the G-ORP Club to any Novice who submits an authenticated log showing 50 CW contacts. The award is in two classes, 'A' for CRP three waits output, or less, and 'B' for any legal power output. If you think the idea has merit, please drop me a line, so I may take it up with the Federal Awards Manager.

Getting back to old-time telegraphy, Tony published a fascinating article on the history of Morse in the February 1986 issue of *Practical Wireless*. We all know that the first words sent in Morse were "What has God wrought." But do you know the occasion, or who suggested them? Very interesting reading, Tony's particular interest at the moment is tracing the history of International Morse (ITU Standard Morse as we know it today). 73 till next month.

## BEACON PLANNING

As previously mentioned in these notes (see page 57, July), FTAC is working on a Beacon Policy Paper this year.

Below is further background material on the operation of beacons.

The choice of frequency and method of operation varies, depending upon which part of the spectrum the system operates.

In recent times there has been an up-surge in HF systems, particularly on 10 metres. Originally, the International Band Plan had a common time-shared frequency of 28.200 MHz and single channels per system, extending down towards the lower band edge for about 50 kHz. It was subsequently found that, an administration had some licenses (by regulation) in the same sub-band. To overcome this problem, the Beacon Plan was hinged around 28.200 and extended upwards toward 28.300 MHz.

For some years, the development of 10 metre beacons continued with more than half (including Australia's) now being part of the International Beacon Project, co-ordinated from the United Kingdom. There are more than 80 beacons, most between 28.200 and 28.300 MHz, at either 2.5 or 2 kHz spacings. A few channels are shared by two systems.

To us 'down-under' in these times of low sunspots, 10 metres looks like wide open, uninhabited spaces, but in other parts of the world, there is a lot of activity.

By way of history, the 10 metre (Australian) Novice sub-band was influenced by the beacon segment. First the Novices were to get a segment

of 10, but the Department of Communications chose to place them on 11 metres instead. When 11 metres was withdrawn for the CBRS, the Department then offered 28.100 to 28.300 MHz as the replacement for Novices. This was discussed at the Federal Convention and it was requested that the 10 metre Novice sub-band be 28.100 to 28.600 MHz. This allowed space to avoid the beacons as well as give access to CW at the low end and American phone band above 28.500 (the American Band Plans are controlled by regulations). The Beacon portion, 28.200 to 28.500 allowed us to establish local operation, as well as fit a 23 channel, 11 metre converted unit into 28.300 and 28.600 MHz.

Elsewhere in the HF spectrum some other beacons have developed, noticeably the 14.100 MHz, time-shared project, co-ordinated from the West-Coast Americans. The system employs up to, 10 stations at different world locations and each has its own one-minute transmission period, which repeats every 10 minutes.

During each beacon's transmission period the output power is reduced in steps of 10. Starting at 100 watts, it drops to 10, 1, and so on. To avoid meaningful results to be observed, each beacon has to have a similar antenna system. The

time control has to be accurate for each to observe its allotted slot.

Currently the German amateurs have a beacon on 10 MHz. In world planning a spot frequency has been left at 21.150 MHz, but it is not known if it is being used. While not a beacon in the true sense, the continuous Morse transmission of VK2RCW on 3.699 MHz.

At the Region 3 Conference, held in New Zealand last November, the spread of 10 metre systems was discussed and it was decided to change to a small group of time-shared channels. It is proposed that there would be a main frequency of a world selection, including one for Australia, possibly similar in concept to 20 metres. In addition, there would be additional channels for time-shared regional systems. The proposed sub-band extends around 28.190-28.200 MHz.

From Australia's viewpoint, we would have one beacon in the prime allocation. In addition, we would have several slots in one of the regional channels. The change over is to occur by January 1, 1990.

Australia currently has six frequencies (28.200-28.270 MHz) with systems at Townsville, Sydney, Adelaide, Albany and Perth. One is being constructed for Darwin. For our systems to be included in the change they would need to be fitted with time controls with a repeat accuracy better than one second. Ideally they should have similar power output and antenna systems.

To be continued next month  
Tim Mills VK2ZTM  
Federal Beacon Co-ordinator

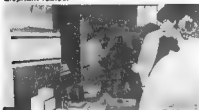
# Club Corner

## MOUNT GAMBIER'S 22ND ANNUAL CONVENTION June 7-8

Well! If you missed the Mount Gambier Convention this year, you certainly missed another good one.

Upon arriving on the Saturday, as did most interstate visitors, it was obvious that Mount Gambier had surely turned on beautiful weather.

The Convention was very well supported by local and interstate trade displays, with some new and well-known equipment available on the market today at bargain prices. The Component Group of the South Australian Division also created a lot of interest as did the Pre-loved White Elephant Tables.



The Trade Displays certainly proved popular with visitors to the Convention.



The activities were too numerous to mention, but by the excellent participation in the Fox and Sniffer Hunts on the Sunday, it was surely one way of keeping out of the cold weather.



Antennas to the ready for the Fox Hunt.

A barbecue lunch was served and was well accepted by all in attendance.

Particularly impressive was that there was plenty of activities all day and yet there was still time to take a drive around some of the tourist sights.



VK3DIP's equipment in readiness for Fox Hunting.



Paul VK3DIR prepares for the Fox Hunt.

Presentations were held at the end of the day to the various winners of the events held over the weekend.

Winner of the Home-brew Section, with a beautiful piece of workmanship moulded into a Cavity Filter, was Brian VK3APN.

The Perpetual Trophy, over the course of the weekend, went to Richard VK7CG, who thanked the committee for an excellent program of events.

At the close of the day, an extremely enjoyable smorgasboard tea was served. A very special thanks is extended to all the ladies and their helpers, who spent most of the week and the weekend preparing for, and serving the hungry gathering.

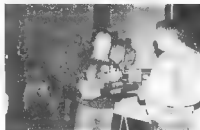
To the SERG Committee, a very warm thank you from one very happy visitor on behalf of fellow amateurs, families and friends for a very enjoyable and well organised convention. And a special thanks to VKSEE and VKSOA for their hospitality.

If you did not attend the 22nd SERG Convention in Mount Gambier, promise yourself a treat next

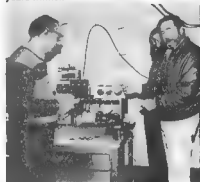
Some of the members and family of the North East Radio Group, VK3.



Participants in the two-metre Sniffer Hunt. The eventual winner was VK7CG.



Richard VK7CG, winner of the Perpetual Trophy, accepts the Trophy from VK3VT, last year's winner.



From left: Kevin VK5OA, Woody VK3AQD and John VK3XS in VK5OA's shack.

year and make sure you attend the 23rd Annual SERG Convention next year. You certainly will not regret it.

Photographs and story contributed by David McAulay VK3BCL

## COMMUNICATION DAY 1986

The Shepparton and District Amateur Radio Club is holding its Communications Day on Sunday, September 7, 1986. The event was previously held in 1983 and 1984 and proved popular with amateurs throughout Victoria and southern New South Wales.

This year there will be demonstrations of the latest equipment and radio techniques. On display there will be a home-type AUSSAT receiver station, which will probably be the first time many amateurs have seen the picture quality from Australia's own satellite.

Early indications are that there will be a very large range of new equipment on display whilst disposals type gear will also be available, along with a range of components.

Demonstrations of packet radio, hopefully on HF as well as VHF RTTY and a comprehensive demonstration station will give plenty to see and talk about.

The Club will also be launching the *Wombat Award*. This is the Club's first entry into this field and the numbered awards will be eagerly sought.

The venue will be the Shepparton Showgrounds, and tea and coffee will flow all day. Also lunch will be available.

Further information may be obtained from Peter O'Keefe VK3YF, PO Box 682, Shepparton, Vic. 3630 or phone (058) 21 6070.

## NORTH EAST ZONE

Fifteen members attended the meeting of the Zone held at the Wangaratta TAFE College (thanks to Dave) on Sunday June 1. Also in attendance were two prospective members and a special guest, Barry VK3XV, on behalf of the Divisional Council.

Many thanks to Barry for the news of the latest WIA happenings and for a very lively discussion.

The main interest was in the new Poropunkah repeater, and the links to Wodonga and Corryong. The Zone is now expecting some action in the near future and with luck and a bit of work, Poropunkah may be ready and running in time for the ski season vs. tows.

One solar panel has been purchased, and the two mounts are presently in Shepparton being galvanised.

The nine dB antenna for VK3RNE has arrived and as soon as the new mounts are sorted out, and a sky-hook arranged, there will be a working-bee to get it installed. Many thanks to VK3s AQG, DUB and 2R for their donations for the solar panels.

The Sunday Broadcast proposals were met with genuine approval as reception has been poor in the past. Seymour at 80 metres should improve matters considerably.

Discussion took place on the new packet repeater located in the Albury area. Thanks to the dedication of about five members, commencement of operation should not be too far off.

Also discussed was the matter of equipment disposals, and it was suggested that an insert in *Amateur Radio* be provided to be sent in by members who wish to compete in a ballot for any goodies. The country members who used this system in the past all claim that it was much fairer.

The next meeting of the Zone will be advertised on the Sunday Morning Broadcasts and in *Amateur Radio*. Everyone is welcome.

Contributed by GJ Griffith VK3CGG, Publicity Officer for the NE Zone

## GEELONG AMATEUR RADIO CLUB

The Annual General Meeting of the Geelong Amateur Radio Club was held on April 18, with the following office-bearers being elected:

President: Alf Forster VK3AJF  
Secretary: Barry Abley VK3YXX  
Treasurer: Carlo Leone VK3BCL  
General Committee: Mike Trickett VK3ASQ and Albert Gnaccarini VK3ZZX

Public Officer: Carlo Leone VK3BCL  
Repeater Sub-Committee: Chas VK3BRZ and Peter James VK3AWY



VK4RTA, Longlands Gap antenna to the right of the dish.

Photograph courtesy Anne Benson VK4FAB

## "SHE'S A BEAUTY AGAIN, MATE!"

Far north Queensland's latest two-metre repeater, VK4RTA, was commissioned on Sunday, May 25, by the President of the Cairns Amateur Radio Club, Colin Swinburn VK4EX.

The Cairns Club's second repeater is located on the southern end of the Atherton Tableland, between Herberton and Ravenshoe and at an altitude of 3850 feet (1175 m) above sea level. It is Queensland's second highest repeater after VK4RCA which is 5250 feet (1600 m) ASL on Mount Ballenden Ker.

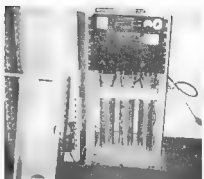
Tourists visiting this scenic wonderland can be assured of excellent VHF communications whilst mobile since coverage is also provided by VK4RCA.

The main purpose of VK4RTA is to cover parts of the area not serviced by VK4RCA, but more importantly, to provide communications as far west as possible on the lonely Kennedy Highway and out into the Gulf Country.

VK4RTA is located at a Telecom broad-band microwave repeater station, at Longlands Gap.

## Club members celebrate the Commissioning of VK4RTA.

Photograph courtesy Ted Gabriel VK4YQ



Photograph courtesy of Anne Benson VK4FAB

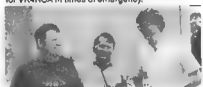
## The repeater rack of VK4RTA.

which is one of a series being installed to push modern communications to the outback. The station with its 185 feet (50m) tower receives signals from Mount Ballenden Ker on 6 GHz and re-transmits them to Mount Garnet, thence on to Mount Surprise, Georgetown and beyond.

There are 1800 channels available for telephones, telex, data and television.

The two-metre repeater equipment is the original history making VK4RCA rig which has been overhauled and modified. Its transmit frequency is 146.875 MHz and it receives 146.075 MHz with a time-out of four minutes. The effective radiated power at present is 10 watts and the antenna is a vertical collinear with a 3 dB gain.

Thanks to the efforts of Will VK4ZNZ, Dale VK4KDM, Graham VK4FGB, plus other club members, far-northern amateurs have another VHF link which also provides a valuable back-up for VK4RCA in times of emergency.



From left: Dale VK4KDM, Will VK4ZNZ and Colin VK4EX, Club President.

Photograph courtesy Ted Gabriel VK4YQ

VK4RTA has been accessed from Hughenden by Max VK4BMW and John VK4FNQ/P under inversion conditions.

A Service Area Map of both repeaters, VK4s RTA and RCA, will be compiled, so reports either direct on the Queens and Nat, Thursday evenings at 0930 UTC on 3.605 MHz, or by mail, would be greatly appreciated. (Please state location, type of antenna and power.)

Location Co-ordinates — VK4RTA Latitude 17 degrees 30 minutes south, Longitude 145 degrees 28 minutes east





## Education Notes

Brenda Edmonds VK3KT  
FEDERAL EDUCATION OFFICER

56 Baden Powell Drive, Frankston, Vic 3199

The statement was made to me recently that, although my position is called Education Co-ordinator, the job I am doing is that of Examination Co-ordinator, as it has played little attention to methods of educating the general public about matters relating to amateur radio.

I can agree with this statement to some extent, but offer no apology for putting most of my efforts and available time into examination related matters. I am sure most readers would agree that support and assistance for the new recruits is probably the most effective way of ensuring the future of our hobby and the Institute.

Several recent articles have suggested ways of increasing the number of active operators.

The value of these articles has lain less in the actual proposals than in the amount of thought, discussion and argument generated by them. Some of the proposals have been directed at particular target groups; eg the young, or the computer enthusiasts. Less consideration has been given to publicising the hobby amongst the general population, which may well be the easiest and most effective way of maintaining and increasing our numbers.

Our hobby does not have a "high profile." Most people see us as CBers who have unsightly beards and cause television interference. We do not generally attract much media attention. When I changed schools at the start of last year, I moved into a population where only about five percent of the staff seemed to have heard of amateur radio. My suggestion of establishing a school radio station was interpreted as wanting to play records over the Public Address System at lunch-time. The idea of a two metre box in the car was greeted with disbelief. But I do not think this particular population is unique — it is probably quite average. Because so many of us work in fields related to our hobby, we tend to forget about the ignorance of the general public. Perhaps we should be actively educating them. There is a vast reservoir of potential recruits waiting to be tapped.

How do we go about it? We all probably agree some time in organised efforts — JOTA, Demonstration Stations, WICEN, etc where we have a captive audience, but more can be done.

Does your local newspaper accept and publish reports of your club activities or notices of meetings?

Does your local electronics shop have a notice-board where meeting dates could be displayed?

Does your business bring you into contact with schools or other institutions where leaflets or copies of AR could be left?

Does your library or community centre have a board for notices of local activities?

Do you explain to the staring teenager why your car has three antennas on it?

Do you offer assistance to the struggling students?

Do you bring the hobby into your conversations with non-amateurs occasionally?

There are endless possibilities. I am not demanding that all members rush out and start preaching, but if we wish to retain our privileges and the strength of the Institute to speak for us, surely we can each make some effort towards encouraging potential operators, or persuading current non-members to join the Institute.

73, Brenda VK3KT

has been to successfully establish a UHF repeater which is situated on Mount Mooloolan, in the Bunya Mountains north-east of Dalby.

The repeater consists of an old commercial UHF transceiver which has been converted to the appropriate frequency.

Apart from the transceiver, all other associated pieces of equipment have been home-brewed. Consequently, the project has been a very reasonably priced one compared to many others of similar ilk. The total cost to the Club was around \$300, including a \$100 on-site public risk insurance. This was only possible through the generosity of several amateurs who contributed various components, time and physical effort to the project, especially Tom VK4DVO, for the construction of the identification and control unit, and to Mike VK4KT, whose many hours of dedication made it all possible.

The Club is very active in WICEN and takes an active part in several exercises each year in conjunction with motor-cycling endurance, car rallies, off road races, road runner marathons, etc. Experience in these exercises proved that 80 metres, 3.5 MHz, is the most reliable frequency for these operations as it penetrates through most types of terrain, unlike the higher frequencies which fail in many situations.

The main problem encountered with 80 metres is the size of the antenna system needed. Consequently, the Dalby Club is experimenting with different types of portable antennas for 80 with varying degrees of success.

Contributed by Neil Holmes VK4NR Club President

## A R Showcase

### HARD DISKS ARE TOO RELIABLE!!

Users are taking huge risks with valuable data — an old statement from one of the disk industry's gurus, Max Pietruschka, but as Marketing Manager for Daneva Australia, a leading distributor of mass storage devices, Max should know what he is talking about.

"The hard disk drive has become so reliable that users forget that it is even there and then POW!! right out of existence a powerful glitch, a heavy handed user or an employee with an axe to grind erases a year's worth of data."

Max has seen the cost of hard disk drives drop to the point that the average Personal Computer is not complete without one, and users no longer equate the value of their stored data with the value of the storage device.

"What price do you put on 20 Mbytes of data? I'm not only talking about the re-entry man hours, some data is just not recoverable."

Max sees an urgent necessity for education of the PC fraternity so that they really understand the limitations of hard disk integrity and take the necessary precautions to ensure their data's protection.

Daneva offers at least seven unique solutions to the backup and security problem. Using Fastback, a floppy based archiving system, a PC user can backup 10 Mbytes in eight minutes. On an AT, 20 Mbytes can be laid down in the same time.

Removeable hard disk media, is an excellent method of having a hard disk and storing it too, and there are about three standards of tape drive with the data carriage being the most popular.

With a Portafix it is possible to keep a mirror of the PC's hard disk.

The Ultimate backup for high performance hard disks of 70 Mbytes or more is the laser disk.

For further information contact Daneva Australia Pty Ltd, Suite 602, Sandringham, Vic. 3191 or phone (03) 588 5622.

### THOUGHT FOR THE MONTH

People who don't change their minds are either perfect or stubborn.

\*\*\*

Transcriber: "Did Dracula like computers?"

Micro-computer: "Yes! It was love at first Byte."

Location is on the Kennedy Highway, near Evelyn Central and the Crater National Park.

ERP at present is 10 watts.

Licenses: Tablelands Repeater Group, Cairns

ARC.

Contributed by Ted Gabriel VK4VIG

### DISABLED PERSON'S RADIO CLUB

The VK4 Disabled Person's Radio Club, VK4B7B, was officially opened in Toowoomba by Senator Gerry Jones, representing the Federal Minister for Communications, the Honorable Michael Duffy, on the August 24, 1983.

To celebrate the Club's third anniversary, an 'on-air' day will be held at Royel Norgaard's QTH on Sunday, August 31, 1986.

The 'on-air' activities will commence at 0001 UTC and cease at 0700 UTC. Should there be operators available, these hours will be extended.

The frequencies on which the Club proposes to operate on SSB are as follows:

3.590, 7.090, 14.190, 21.190 MHz.

Modes used will be dictated by availability and expertise of operators, but it is hoped SSB, CW and RTTY will all be used.

Further inquiries can be made by contacting the Club on their regular Friday Net, which commences at 0900 UTC on 3.590 MHz  $\pm$  GRM, or by contacting Royel VK4AOR, on (078) 96 7587 or Graeme VK4NYE on (078) 30 8323. Both are QTH.

The Club is looking forward to meeting you on this day.

Contributed by Royel Norgaard VK4AOR, Station Manager for VK4B7B

### DEVIL NEWS from the North West

There is not a lot of news to report from the Branch this month as the meeting was reduced to urgent matters only so that the ladies would not have to wait around too long.

The a ladies present and the guest speaker and his wife were welcomed by Rob VK7KAB. It was also announced to the 16 members present that VK7RAD was operational from VK7ZAP's QTH, and attention was drawn to the recently completed Diplexer, which was on display for members to see before it was put into operation.

Darryl Odgers was welcomed as a new member.

The rest of the evening was spent learning about Camp Quality with the assistance of a short video and a talk from John Willet. John explained the facts and requirements of the camp. The camp is from December 8 to 14 and during that time, those involved will have their entire day and some of their evening fully occupied. This fact must be understood by volunteers and their families before they commit themselves.

The men will be involved in communications for the camp and a station for contacts with other children for the camp children to talk to. Others will be involved in the activities side of things as well as a Video.

The data draws nearer, donations of cakes and biscuits may be asked for as the whole project is public funded and every cent is most important.

A pleasant get-together and supper followed to complete the evening.

The new club room is progressing quite well and some planned benches are now built and in place. (It was decided at the meeting to reimburse Greg VK7ZST, for the cost of the timber which he had bought with his own funds). Thanks also to Greg for getting these notes together!

There was a Saturday Working Bee recently which resulted in the antennas being shifted and the coaxial cable being re-located into the room. Nine willing pairs of hands made the Bee a great success.

There may be a need for more Working Bees in the near future to continue with the project — Greg will no doubt let all members know when and why.

Contributed by Max Handstaff VK7KY

### DALBY AND DISTRICT AMATEUR RADIO CLUB

The Dalby and District Amateur Radio Club, although small in size, is a very enthusiastic in its activities. The largest achievement of the Club



# VK2 Mini-Bulletin

Tim Mills VK2ZTM  
VK2 MINI BULLETIN EDITOR  
Box 1066, Parramatta, NSW 2150

## AMATEUR RADIO HOUSE

is located at 109 Wigram Street, Parramatta. It is open from 11 am to 2 pm Monday to Friday and from 7 to 9 pm Wednesday evenings. Telephone (02) 669 2417 during these times.

## REMEMBRANCE DAY CONTEST

See July Amateur Radio for rule details. For the past two years, VK2 has been the winning Division. Can we make it a third time? I am sure that we can if as many VK2s as possible set aside some time during the weekend of August 16 and 17, to have as many contacts as possible. Follow this by the all important submission of the log. The RD opening address will be transmitted before the 6 pm start and VK2WV will commence at 5.30 pm with the weekly news bulletin followed by the opening address. There will not be the transmission at 11 am on Sunday, 17th, but the evening session at 7.30 pm will be as usual.

## SEMINAR AND DINNER

It has been decided to hold the next VK2 Seminar at Amateur Radio House on Saturday, September 13, and a Dinner on Saturday evening, October 11. Members are reminded of the monthly barbeque at Dural on the first Sunday of the month — August 3 and September 7.

The Fireworks evening was held in ideal weather on May 31, with an attendance of over 100. Next year's event will be held on the Saturday evening before the June long weekend.

## 160 METRE BANDWATCH

The frequency for this bandwatch is to change. The present frequency of 1.825 MHz now falls within the Band Plan DX-W.indv. It has been decided by Council to change, particularly with our evening transmission. The chosen frequency is 1.845 MHz. The old frequency will be retained in the transmitter as an alternative channel, should the need arise. The VK2RSY Beacons at Dural, will expand into the higher microwave regions.

The next systems will be on the test frequencies of 10.300 GHz and 24.100 GHz (subject to licensing approval). The Division is to develop a multi-mode packet repeater for installation at

VK2WV. This will be followed by a Bulletin Board facility.

## CENTRAL COAST ARC

The Central Coast Amateur Radio Club is to develop a packet repeater on two metres and an ATV repeater. (Input AT-V1 on 70 and output at 50 cm). They conducted further tests on May 25, to site-check a proposed two metre WICEN site, west of Cessnock.

In late May, the Tarnworth two metre repeater, VK2RTM 6750, was vandalised and much of the equipment damaged.

The investigation for an alternative channel for the Liverpool and District repeater, VK2SLD continues. The need to change is caused by the recent location of a pager transmitter 200 metres away, 37.500 kHz from its present input.

## MOSQUITO RESTORATION

There has been a good response with equipment offers for this project. Perhaps it is time to also start rounding-up some of the old WWII equipment which is still around in original or mint condition. While display and storage presents a problem in many cases, it will not be long before much is lost for all time and the various museums will be seeking it. Any thoughts on how best to preserve equipment of yester-years?

## REMEMBER?

A reminder to all Clubs. The next Conference of Clubs will be held on Sunday, November 2. The closing of the agenda is mid-September, so any items should be raised this month at your meetings and submitted without delay to the Divisional Office.

Also, at the time these notes were being prepared, there had been a poor response from Clubs for the details and questionnaire regarding insurance.

## FIELD DAY

The Oxley Region Field Day was held at Port Macquarie over the June long weekend, in ideal weather conditions. Registrations exceeded 100. The next country field day will be the South West Zone, which will be held in the Riverina during

October. Details later.

## WICEN

Coming activities for WICEN include the City to Surf in Sydney, on Sunday morning, August 10. The Car Rally at Batemans Bay will be held on the weekend of August 26-28, and the Canoe Classic on the Hawkesbury over the weekend October 18-19. Registrations to attend may be given on the weekly VHF Sydney nets — Thursday at 8.30 pm or telephone the Divisional Office at the times and number above.

Steve Boyd VK2DNN, is the Acting-WICEN Co-ordinator. The VHF 7150 repeater transmitter is currently being re-built.

## JOTA

This will be held over the weekend October 18-19. Now is the time to contact your local group. If you have no regular group, but would like to offer, then register with the Office.

## DISPOSABLE NET

A new list is available from the Office by sending a SAE. There has not been much change to items available from the May list, however. Publications stocks are also low at the moment. A range of most sizes of the tea-shirts, leisure shirts and wind-cheaters are still available.

## NEW MEMBERS

The VK2 Division of the WIA welcomes the following new members.

B Baolgh VK2BBX, Liverpool; J M Breat VK2PJB, French's Forest; A G Brodie VK2BYA, Junee; D S Brown VK2JAG, West Pymble; R A D Clark VK2JUN, Wimmerie, LE Cooke Assoc, Stokton; D Osmer VK2EDD, Bankstown; R J Foster Assoc, Hornsby, R J Gilford-Moore VK2XUE, Artarmon; R S Harris Assoc, Hay. F G Ison VK2DQX, Farmborough Heights; F J Manthey VK2MKT, Birmingham Gardens, S Murdoch VK2TIE, Wyse; I L Norman VK2ZIN, New Lambton; M E O'Riyan Assoc, Concord; G R Parsons VK2DQZ, Sansbury Point; C J Broad Assoc, Fairfield West; P J Sturt VK2ZRT, New Lambton Heights; W Thompson Assoc, Cessnock; J E Wellison Assoc, Cessnock.

# Intruder Watch

Bill Martin VK2COP  
FEDERAL INTRUDER SUB-CO-ORDINATOR  
33 Somerville Road, Hornsby Heights, NSW 2077

Starting off with the unpleasant news of how the amateur bands were disrupted in April, we have the following statistics

321 AM intruders; 162 CW intruders, 102 using RTTY; 48 other intruders, and 73 intruder stations gave their call signs.

Probably there are those who will say, "Wait a minute — 73 stations gave their call signs? Well, if you know who they are, why don't you do something about it?" Why, indeed?

Unfortunately, it is not as simple as that. Knowing the call sign does not always tell us where they are, or who they are. Also, obviously, a great many of these stations are working with the blessing of their country's administrations!

There is not much we can do about that, short of declaring war! However, we can continue to appeal to the various administrations, and hope that, sooner or later, their conscience gets the better of them. Meanwhile, thanks to those who sent in reports for April 1986, we have VK1NUN, VK2S COP DEJ, DVW, EHO, PS, SWL, G HA Bradford, VK3S LC, KB, VK4s AXK, AV, BG, BH, BTW, KAL, KHZ, VK4s BJF, GZ, VK4s JO, OD, RO, XV, XZ, VK7RH, VK8s HA and JF.

## MORE TAXI CABS

The problem of the Asian taxi on 28 MHz,

allegedly coming from Hong Kong, appears to be building into a real problem. I received a letter from Phil VSECT, who said that the taxi cabs in the colony were indeed using 28 MHz, and he supplied me with a cassette tape of these signals, copied locally. All are in Cantonese, of course. The Intruder Watch is working with the IARU International Monitoring System Co-ordinator on this matter, and I have sent a letter off to the DOC, to see whether they can let the Hong Kong authorities know that the chaos the cabs are causing is not internal to their borders, and when the solar cycle gets it's act together, there will no doubt be a lot of disgruntled 10 metre enthusiasts who will be finding that they have called a cab! (Which is okay if one is interested in seeing Hong Kong, but warn you, the fare will be astronomical!)

## COMPLAIN NOW!

Seriously, now is the time to start complaining, before the lower half of the band is full on non-amateur traffic. So, if you hear 'em — report 'em. TNX (They are currently being heard up to 28.600 MHz). The people who operate the beacons in the 10 metre beacon segment should have an interest in keeping the frequencies clear.

## NEW CO-ORDINATOR

Bill Wilson VK3DXE, has been appointed the new IW Co-ordinator for the Victorian Division of the WIA. Welcome to the club Bill, and we look forward to your input. Bill replaces Steve VK3JY, who has had to relinquish the post.

Bill looking forward to the solar cycle improving, but this will be a mixed blessing, with no doubt also an increase in intruder activity.

## JAMMERS CAUSE PROBLEMS

Henry VK2ZHE, passed on some disturbing news in May — a medical emergency was taking place on a yacht off Papua New Guinea, and the amateurs who were handling the traffic had to try and battle through a jamming station, which, at a guess, was probably trying to jam Radio Tirana, which operates on 14.320 MHz.

The jammer, which identified as "SM" has been heard before, jamming Radio Beijing, so we can guess from whence it came. Makes one wonder if these people who indulge in these practices have really grown up?

So that's about it for another month. I will say 73 and look forward to hearing from any amateur operator or SWL who hears intruder stations on the amateur bands.



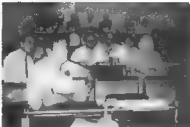
## VK4 WIA Notes

Bud Pounsett VK4QY  
Box 638, GPO, Brisbane, Qld. 4001

This month's notes depict the 1986 Club Conference in photographs. The photographs and captions are courtesy of Bud Pounsett VK4QY.



Michael Owen VK3KJ, speaks with David VK4AFA (left), Peter VK4KIR and Michael VK4YOB.



David Jerome VK4YAN, Queensland Divisional President, with other delegates listens intently to a lecture on packet radio given by John Bawa VK4KJB.



During morning tea, Bill Sebbins VK4XZ, talks to Ross VK4IY and Charles VK4BPI.

**MEETING**

Another view of delegates.

### LET'S REMEMBER HERTZ

▽ 1986 is the centennial year of Heinrich Hertz's pioneer experiments in electro-magnetic waves. It was in November/December 1886, when he was a professor at the Technical University of Karlsruhe, Germany, that Hertz first watched the discharging of a Leyden jar (nothing else than a large capacitor) through a spark gap, which was in the centre of a three-metre-long copper wire.

Hertz realised that in a similar wire with a gap two-metres apart, small sparks were also generated without any physical connection between the two wire-gap systems. These were the first transmitter and receiver of electro-magnetic waves.

Only a few months later, Hertz found the wave-length of the oscillations (eight metres), their velocity in free space, the influence of resonances, nodes of zero electric effects on the wires, the rectilinear propagation of the waves and their reflection from metal surfaces. Performed in the largest auditorium available, he experimented with wave-lengths down to half-a-metre.

Thus, Heinrich Hertz laid down the fundamentals of all varieties of modern-day communications, including amateur radio. But he did not live long enough to see the results of his work, he died on January 1, 1894.

Written by Wolff Parmentier DJ5JH in QST February 1986, and contributed to AR by Steve Mahony VK5AJM



Ian J. Truscott's **ELECTRONIC WORLD**

**HOBBYISTS — AMATEURS**

For all your component needs come to Truscott's.

MAIL ORDERS WELCOME.

30 Lacey Street, Croydon 3136. Phone 723 3860 / 723 3094

Full range of components including:

Motorola/National Data Books

PC Board(s); Rison & Vero

Artwork tapes etc.

High Voltage — Ceramics, Coil Formers.

Amidon Toroids, 1/8 watt resistors, Logic gates, TTL, CMOS & 74HC series.

AN86

# Five-Eighth Wave



Jennifer Warrington VK5ANW

59 Albert Street, Clarence Gardens, SA 5039

The 1986 Clubs Convention, which was our third such event, was held over the weekend of April 11-13, at Cooranga YWCA Conference Centre, Aldinga Beach.

Clubs represented were Adelaide Hills, Lower Murray, South East (SERG), Second Adelaide Scout Radio Group, LEPARC, ACBRO, SA ATV Group, Darwin, South Coast, Elizabeth and Port Adelaide.

It was the first year that the Adelaide Hills ARS and the Association of Citizens and Band Radio Operators have attended, and I think we all gained much from their input.



From left: Jack VK5FV, Representative from Port Adelaide ARC, Brian Harrison, Australian Association of Citizen and Band Radio Operators Inc, Gordon VK5KGS, Secretary Adelaide Hills ARS.

Photograph courtesy Peter Koen, Secretary VK5BPA

## DOWN TO BUSINESS

Frid night was informal. Saturday morning saw the start of the official business and after a welcome and introduction from President Dick Boxall, and a brief word from the delegates about the clubs, we started on the Agenda. Convention Agenda items, taking VK5 first. Prior to the start of the afternoon session, we presented Wendy Clegg (wife of VK5AMK), Gill Wardrop (wife of VK5AWM), and Liz Ratcliffe (wife of VK5AGR), with a pot plant each as a thank you gift for their Catering Duties at this and the past two Conventions.

## STITUTE AUSTRALIA



VK5 State President, Jenny VK5ANW, with Max VK5ZS, WIA Federal Historian.

Photograph courtesy Peter Koen, Secretary VK5BPA



Wendy Clegg receives a gift for organising the menu and cooking for the past three Clubs Conventions. Husband David VK5AMK, is Head-Buyer.

Photograph courtesy Peter Koen, Secretary VK5BPA



Gill Wardrop receives a gift for cooking for the past three Conventions.

Photograph courtesy Peter Koen, Secretary VK5BPA



Liz Ratcliffe was presented with a gift from the then President of the WIA (SA) Division for her assistance with the meals at the past three Conventions.

Photograph courtesy Peter Koen, Secretary VK5BPA

## INFORMATIVE TALKS

After lunch, we were given some most informative "Brief Talks" by Kon Hull VK5ZS, the Federal Awards Manager, John Gough VK5QD, the Divisional CSL Bureau Manager, Bill Wardrop VK5AWM, the Divisional WICEN Director, and Peter Koen, Secretary of the Second Adelaide Scout Radio Group. (Peter is perhaps better known, unofficially, as our "Display Man", which was the topic he chose to talk about).

Many interested visitors attended one or more of the Saturday sessions. It has been suggested that we did not advertise it enough, in fact, "kept it a secret." This was not true, however, if we had made it an open invitation to all, without knowing who would be turning up, it could have made catering and seating arrangements rather difficult. Anyone who feels that they would like to attend in the future need only contact whoever is doing the organising so that we know how many will be attending.

## GUEST OF HONOUR

Max Hull VK5ZS, the Federal Historian, was our Guest of Honour, and after dinner speaker on the

Saturday night. Max showed us a very old film, recently transcribed to video, on Thomas Edison's assistant demonstrating and describing some of Edison's earliest experiments. Max then gave us a very interesting talk on his own early life and how he got involved with radio.

Later still he showed us some slides of historical interest, which had been put together, with commentary, by Chris Long former assistant curator at the Melbourne Museum of Applied Arts and Sciences. Chris also worked with Peter Woffenden VK3KAU, and Max, on a tape of Historical Sounds, including the voice of Marconi, to commemorate the WIA's 75th Anniversary last year.

Max presented a copy of this tape to the Division which by now you may already have heard, via the Broadcast Members can also purchase copies if they wish. Max was accompanied on this trip by his cousin, Murray Hull VK5KDL, and we were delighted to have both of them with us.



From left: Carol VK5PWA, and Jack VK5AJK, from Lower Eyre Peninsula ARC, David VK5AMK, (then Council Member), Don VK5ADD, VK5 Secretary.

Photograph courtesy Peter Koen, Secretary VK5BPA



Club Representatives and the WIA (SA) Council.

Photograph courtesy Peter Koen, Secretary VK5BPA



Club Representatives listen intently to Max VK5ZS, WIA Federal Historian.

Photograph courtesy Peter Koen, Secretary VK5BPA

## AND INTO DISCUSSION

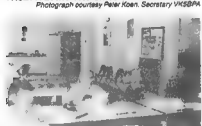
After listening to the Broadcast on Sunday morning, we finished the remaining Agenda items and Carol McKenzie VK5PWA, the President of the Lower Eyre Peninsula ARC led us in a discussion on Long Range Plans for the Continuing Growth and Development of the South Australian Division of the WIA. Subsequent to this title included, the role of the Divisional Council as an Administrator, the planning and

implementation of zones, whether a separate Adelaide club should be formed, the place within the organisation for the Barley Griffin Building, it's availability to members, use of — by members and groups, and other activities. These were not necessarily the views of Carol or LEPARC, but were being voiced on behalf of many country members, who seem to feel that their fees go to pay for a building and social activities, which, on the whole, they never see or use.

I think in the end, we decided that about 80 cents per member was the sum we were talking about (having removed the Federal component and costs for such things as the insert in AR, postage, telephone, stationery, and insurance, all of which are of indirect or direct benefit to the country amateurs. One other benefit which gets overlooked by many is the Sunday Morning Broadcast, which is certainly of great benefit to all country amateurs, whether members or not, also costs of repairing or replacing tape-recorders, tapes, and the transmitter room equipment do not always come cheaply, despite our band of willing volunteers who are always endeavouring to keep costs down.



From left: Larry VK8LM, Darwin ARC, Steve VK3YVY and Dave VK3DGJ from the South East RG and Bob VK5ADR, Leader of VK5BPA at the VK5 Clubs Convention.  
Photograph courtesy Peter Koen, Secretary VK5BPA



From left: Colin VK5JR Representative from Lower Murray ARC, Charlie VK5ACE Representative from ATV Group, Steve VK5AOZ and Vince VK5ZSV, both Representatives from the Elizabeth ARC.  
Photograph courtesy Peter Koen, Secretary VK5BPA



Steve VK5AOZ and Vince VK5ZSV, Representatives for Elizabeth ARC.  
Photograph courtesy Peter Koen, Secretary VK5BPA

#### MOVED AND SECONDED

A motion was drawn up as a result of this discussion, which states, "This Conference supports the Divisional Council in the



Max VK3ZS, addresses the Convention.

Photograph courtesy Peter Koen, Secretary VK5BPA

management and administration of the SA Division and encourages all member clubs to nominate a delegate to the Institute as provided for in Rules 105 and 106 of the Constitution."

It was moved by Darwin ARC and seconded by the South East Radio Group, and carried. The business closed at 12.55 pm after which we had lunch and packed up to go home.

#### SPECIAL THANKS

I would like to thank all who attended for their continued support, and the fact that, despite some "vigorous discussions", some very solid ground-work was laid, on which to build a better understanding between Divisional Council and the Affiliated Clubs.



Meal-time at the Convention.

Photograph courtesy Peter Koen, Secretary VK5BPA

NOTE: For those who like to plan ahead, we have booked Cooranga for the ANZAC weekend next year (April 24-26), also we are looking for more help in the Catering Department. In particular, someone to take Wendy Clegg's place in doing the buying. This should not be too hard as Wendy has kept a record of how much/many of everything is required. Please let me know if you would like to be involved.

#### THE SOUTH EAST RADIO GROUP CONVENTION

For many years people have been telling me that I should go down to Mount Gambier, on the Queen's Birthday long-weekend in June, for the SERG Convention. How right they were! Even the weather was reasonably kind to us and as for the hospitality, it could not be faulted. The SERG ladies did a magnificent job with the catering (for 200 on the Sunday), and the events, etc all ran smoothly with the help of the local OMs. I realise that they have been doing it for 22 years and so probably have it down to a fine art but when you realise how many active members of the Club there are, it really makes you appreciate the work

that must go into it. There was also a surprise finale this year, when the trophy for the highest aggregate of points went to VK7I! That should make the VK3s and 5s even more determined next year. See you next year at SERGI!

#### STILL MORE J-150 AWARD

##### WINNERS

|          |          |          |           |
|----------|----------|----------|-----------|
| 53VKBNXT | 67VK5BEG | 61VK5AOD | 85VK5YX   |
| 54VK7MAJ | 68VK3COP | 82VK1MV  | 86VK5POT  |
| 55VK5MX  | 68VK5NDB | 82VK5VJ  | 87VK3AEO  |
| 56VK6AKV | 70VK5BPA | 84VK2MMP | 86VK5NDB  |
| 57VK4NWH | 71VK3AEO | 85VK2MMP | 86VK5BWF  |
| 58VK5BJA | 72VK5NVC | 86VK4NWH | 100VK5COP |
| 59VK5GU  | 73VK2JBM | 87VK5PEB | 101VK3COP |
| 60VK5GU  | 74VK5NVT | 88VK2NEV | 102VK5BL  |
| 61VK5GAS | 75VK5ADB | 89VK7KJ  | 102LKBK   |
| 62VK5GAS | 76VK5NDB | 90VK5GAS | 104VK5ATN |
| 63VK3BHM | 77VK5OT  | 81VK5PMW | 106VK2BM  |
| 64VK5BLU | 78VK5VQ  | 82VK5PMW | 108VK5BWF |
| 65VK5AEO | 79VK5A   | 83VK5BWH | 107VK5AS  |
| 66VK3AEO | 80VK5VQ  | 84VK5OW  | 108VK2BR  |

|           |           |            |           |
|-----------|-----------|------------|-----------|
| 109VK5MVC | 133VK5OU  | 156VK5BMT  | 179VK5BJE |
| 110VK5HT  | 134VK5OX  | 157VK6ALE  | 180VK5OX  |
| 111VK5MTT | 135VK5ZK  | 158VK6AMH  | 181VK3PEM |
| 112VK5MTT | 136VK5OX  | 159VK5NMM  | 182VK5PEM |
| 113VK5YX  | 137VK5BT  | 160VK5NMM  | 183VK2HWL |
| 114VK5YX  | 138VK5OU  | 161VK5OU   | 184VK5NKA |
| 115VK5POT | 139VK5ANB | 162VK5OU   | 185VK5CWS |
| 116VK5POT | 140VK5ANB | 163VK5CXX  | 186VK5OB  |
| 117VK5PRB | 141VK5NEB | 164VK5CXX  | 187VK5VOX |
| 118VK5KIA | 142VK5A   | 165VK5CXX  | 188VK5VOX |
| 119VK5PRB | 143VK5A   | 166VK5CXX  | 189VK5OX  |
| 120VK5AOV | 144VK5AJK | 167VK5CXX  | 190VK5AVQ |
| 121VK5AOV | 145VK5COW | 168VK5COW  | 191VK5AVQ |
| 122VK5AOV | 146VK5NBU | 169VK5VQ   | 192VK5OX  |
| 123VK5MEV | 147VK5NBF | 170VK5ABY  | 193VK5AVQ |
| 124VK5MEV | 148VK5AX  | 171VK5SAW  | 194VK5NOS |
| 125VK5MEV | 149VK5NOG | 172VK5SAW  | 195VK5AJ  |
| 126VK5NBT | 150VK5SJ  | 173VK5ANMA | 196VK5KIA |
| 127VK5COB | 151VK5PRD | 174VK5ABW  | 197VK5KIA |
| 128VK5COB | 152VK5PRD | 175VK5COX  | 198VK5KIA |
| 129VK5SHQ | 153VK5TBV | 176VK5ABW  | 199VK5SHW |
| 130VK5SHQ | 154VK5RKB | 177VK5VBM  | 200VK5SHW |
| 131VK5GOW | 155VK5BPC | 178VK5ABE  | 201VK5SHW |
| 132VK5GOW |           |            | 202VK5NHW |
|           |           |            | 203VK5NHW |

NOTE: \* denotes first Stateside

## TEST EQUIPMENT

### AUSTRALIA'S LARGEST RANGE OF SECOND HAND:

Hewlett Packard  
Tektronix  
Marconi  
Solartron  
Boonton  
BWD  
Brue & Kjaer

Oscilloscopes, sig gens, spectrum analysers, multi meters. Wide range of amateur and communications equipment valves, coaxial connectors and test accessories. Repairs and service to all makes and models.

**ELECTRONIC BROKERS**  
**AUSTRALASIA**  
20 Cahill Street, Dandenong  
(03) 793 3998

AN6



# Over to You!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher

## VK HANDBOOK

There is a perceived need for an Australian Radio Handbook. Apart from one or two slim volumes, licensing requirements, operating techniques, DXing etc. are, to date the only subjects so far covered in existing literature published in this country. Basic theory is adequately covered in overseas publications such as the ARRL and RSGB handbooks, Scroggys Foundations of Wireless, etc. Unfortunately, much of the constructional content of overseas books simply parts which are at best difficult — usually, impossible to obtain in VK.

At present, there appears to be a significant level of interest in antennas, simple QRP transmitters and related devices, DC voice vers, measuring instruments and so on. Looking through back issues of AR, it is possible to find a wealth of interesting articles by a number of Australian authors, all making use of locally available components. I put to the membership, would you like to have a handbook — one which attempts to cover a range of technical subjects and projects, put together by Australians?

I would be happy to be involved in such a project, but I do not have the qualifications or the resources to do it on my own. If you think the idea has merit, or would like to contribute a time, effort or material, please communicate your comments to the Publications Committee.

Yours fraternally,

Drew Diamond VK3XU,  
Lot 2, Gatters Road,  
Wonga Park, Vic. 3115.

The Publications Committee has discussed the possibility of producing a handbook along the lines suggested. We need some idea of how many could be sold. If you, the reader of AR, would be interested in contributing to and/or buying such a book, will you please let us know of your interest. EIL

## THOSE WHO KNOCK MORSE

I agree with many of the points raised by Messrs Fatourou, Holliday, de Bruin, Segal, Batty and Cossins in their thought-provoking open letter (page 50 June). The letter would probably have had more credence however, if it had come from a group of rank and file amateurs, rather than a group of so-called academics with lots of letters after their names — two of them not amateur. In large organisations — like the WIA (and particularly educational institutions) there is bound to be some 'dead wood'. The way to change this is simple. Join the organisation, make your views known, get yourself elected onto committees, and fix the problems. Any moron can sit in the side line singing mud.

Contrary to the views of those above, I believe that there is a core of truly technically-minded amateurs. This is evinced by the volume of correspondence received seeking advice, offering comments, etc. in response to my technical articles in AR. I don't know if there is a sort of chicken and egg problem here, but most suppliers of electronic/radio kits have not made it very difficult for the amateur constructor to obtain his small quantities of components. The usual story is something like, "Yes, we can get that for you. Eight weeks from the USA. Minimum \$50 order". — Pretty discouraging isn't it? If we could get ourselves properly organised, it should be possible for us to overcome this problem.

It is my hope that those who knock Morse are generally those that have:

- attempted the Morse test, failed, and now justify their incompetence by branding it "old fashioned" or "irrelevant in todays computer age", or

- managed to struggle through the test, but have "thrown the key away and forgot the stuff".

Life is like that. It cannot be expected for everyone to have the same interests (happily). My

suggestion is that Morse qualifications should only be necessary for those who genuinely like it. An endorsement, after passing the Morse test, would allow the holder to have the use of the LF portions of the bands. This would allow those not interested in Morse, full access to the bulk of the HF bands. Sounds reasonable? I think so.

Yours fraternally,

Drew Diamond VK3XU,  
Lot 2, Gatters Road,  
Wonga Park, Vic. 3115.

## CONGRATULATIONS

Having been a member for a short time, I admit to being very impressed with the efforts in publishing the Call Book and the monthly magazine. Congratulations to both.

Yours sincerely,

Bill Corrick VK3CBG,  
7 Glenisla Street,  
Belwyn, Vic. 3102.

## AMATEUR RADIO COOK BOOK OR FOOD FOR THOUGHT

In answer to the comments of Les Daniels VK2AXZ, in *Over to You! AR*, Vol 54, No 5, headed *Food Recipe Cook Book*.

First of all Les, I would like to thank VK2ZYF for the refund which I received via VK2MMW. I am afraid I have not had the pleasure of meeting VK2ZYF in this matter (perhaps another misnomer?).

I am also very pleased to see that the wording of the advertisement in question has been changed, both in AR and in another well-known amateur radio magazine and no longer appears as it did in AR, January issue this year, and that the price has dropped to \$2, or am I wrong? Perhaps the concept of the figure \$2 in the metropolitan areas becomes \$5 in the Bingers area?

In your reply, you mentioned 'wombats in the metropolitan areas'. Les, I'm afraid I've never seen them up here in Bingers, would I know one if it was served to me on a plate, although I know that DOC has been known to trap them in railway marshalling yards. I do, however, get a lot of galahs on my antenna and I am having a great deal of trouble from power line interference, but I suppose I will have to write to the egg board about that.

If you ever come up this way Les, pop into Bingers, you will find the beer much cheaper, according to your comments on the price of the book compared to schooner of beer.

I am not having a dig at you for raising club funds, Old Man, but I really wish I could get the fish in the Gwydir River to read AR's *Over to You!* I would probably get a bit or two!

73,

Glyn Gabbings-Johns VK2DJV,  
144 Maitland Street,  
Bingers, NSW. 2404.

Stop cooking now chaps, no more, please! EIL

## DISCUSSION PAPER

The paper *Amateur Radio Future* Direction by Jim Linton VK3PC and Roger Harrison VK2ZTB, published in AR, February 1986, was a discussion topic at the 1986 Conference of Clubs of the Queensland Division and the following is a summary of statements and opinions expressed by the delegates and observers from 17 clubs and groups present at the conference. (As a record it is not necessarily authorised by the VJ Vision — Ed).

The majority were against any lowering of the present examination entry standards or the granting of certain privileges to those who had not earned them by not reaching an adequate level of proficiency.

Cairns club members viewed with concern the idea of adopting the Japanese Telephony Begin-

ners Licence, which was the result of a commercial arrangement between the government, the JARI and equipment manufacturers to create a market for their products.

Furthermore, club members agreed that they did not want to see that sort of thing happen in this country and stated that we must not permit our hobby to be influenced, manipulated or altered by minority groups with selfish, commercial or purely financial interests.

Surprisingly many novices were not in favour of the proposals, and indeed two young observers from the Oakley State High School Club said they did not think that the Novice Licence should be handed out on a platter, but should be worked for and that young people could cope with the present Novice Licence.

A Gold Coast delegate said that, as a member of a computer users group, he found that computer people were not interested in amateur radio. The Central Queensland Branch thought that we have nothing to offer the young computer group as they have modems and use the telephone as well as amateur radio.

The radio amateurs group said that many school age people are not interested in amateur radio because computers are all the rage.

The Chairman, Ron Smith VK4AGS, asked, "Why does the press give publicity to CB and is unaware of amateur radio publication?"

Gympie Club stated that we do not get publicity because we do not do anything about it and many agreed with that point.

It is clear that the authors have not done sufficient research into why young people are not being attracted to amateur radio.

Instead of trying to play the 'numbers game', as was done with CB and engaging in 'Fights & Fancies' about computers, the authors should have consulted radio clubs around this country who have, for many years, been trying to interest young people in amateur radio. They would have then learned the cold hard facts — mainly that you can only be successful if young people themselves are interested.

Furthermore, 'Brownie Badge' licences, with the lowering of standards and 'giving something for nothing', would certainly destroy incentive at a time when the hobby is becoming more interesting and diverse.

In our society today there are those who want to be university graduates without studying — those who want to be paid without working, etc, and now those who want to be amateur radio operators without meeting any standard.

If those who are calling for a lowering of accepted standards would devote half as much time to studying as they do to writing letters and whining they would have their licenses as others have.

Recently, a young Queenslanders, who has been blind since birth, obtained his unrestricted licence with an exam pass of 91 percent.

So it is humbly submitted that this achievement completely refutes the ridiculous and specious statement by the authors that the present licence structure is not suitable for computer operators — if they cannot cope with this as this young man has done — then they would or should never become amateur radio operators.

From which element would the amateur radio service gain its strength, those who make an effort to succeed or the whingers?

We have seen and heard what has happened to the amateur radio spectrum in this country populated by those who have not had to exert any mental effort in order to operate a station.

It seems one of the immutable laws of mankind is that you take care of something in direct proportion to the effort necessary to obtain it.

Most radio clubs have certain ideas about the future of amateur radio and spectrum. It would be prepared to put to a committee of members with an adequate background and experience in the

hobby such a committee would need to be completely independent of and not connected in any way with the electronics industry.

If we are to interest our young people in amateur radio, not only as a hobby, but as a training ground for future electronic technicians, there must be motivation and an incentive to succeed by learning and experience, and not by the lowering of standards.

Therefore, the world's oldest radio society and its affiliated clubs must come forward with much better thought-out proposals than these and which reflect the views of the majority of its members.

Ted Gabriel VK4YG,  
Cairns Club Delegate,  
PO Box 245,  
Ravenshoe, Qld. 4872.

#### THANKS VK!

I would like to say thank you to the WIA South Australian Division for organising the 'Jubilee 150 Award'. I received my certificate in mid-May and was very pleased and impressed with it.

Also, my thanks to all the VK5 amateurs that I had some very enjoyable QSOs with. It took approximately 15 hours of on-air time to gain this award. 15 hours definitely not wasted as I enjoyed every minute.

Arthur Breen VK6SY,  
28 Benbow Street,  
Trigg, WA. 6029.

#### DISCUSSION PAPER

I write, yet again, to put forward some more comments and views about the *Discussion Paper*, and the ensuing discussions.

It seems, that once again, CW is attacked. All the letters referred to appear in June *Amateur Radio*.

I have only one comment for Neil Trainor's letter — Hear! Hear! (Particularly the part about costs).

I cannot agree with Max live when considering these two points:

1. Okay, so we have a Kindergarten Licence. Like kindergartens in our schooling system, the Kindergarten Licence is not a compulsory item, however it can be beneficial to those who might like to graduate to higher levels but are unsure of the initial steps to get there. Some people lack time and/or facilities to go straight to the higher licence, but wish to get into amateur radio, none-the-less.

2. Max intimates that everyone knows, through unknown means, that amateur radio is what they want. I feel this is wrong — not everyone has amateur friends/relatives to give them an initial sample of life with amateur radio. Some people take the gamble anyway, study for and get their licence, and are, I hope, glad of their effort. However, people are easily discouraged and are reluctant to do anything they are unsure of. These people would be more easily encouraged to join amateur ranks if they weren't faced by the daunting task of studying for the Novice Licence.

Maybe I am too young to understand the reference to the 'nine days wonder', but I do understand the proverb, and what it means. It is a lot easier to lead a horse to water if it knows what you are leading it to, and it wants a drink! More horses (potential amateurs) will drink (amateur radio) if the water looks clean (unthreatening) and/or is easier to drink. Obviously, if the horse is not thirsty (uninterested in amateur radio) there is little anyone can do, easier licences or not.

Peter Froese has some interesting ideas and caused a slight modification to my own ideas. I disagree with his suggestion for the removal of the CW requirement. Sure, five words-per-minute is painfully slow for some, but for others it is the best they have yet achieved.

Peter then goes on to say, 'The real traditions of amateur radio are the CW bands'. Agreed. So why remove CW, part of those traditions? Is it expected for all to get to 10 WPM straight off? Some people cannot get to classes and need the on-air experience to get up to those speeds. Would these people be denied full calls because of their geographical location?

I have a suggestion for a solution to the licence

argument, and still make amateur radio more accessible.

Introduce one new licence (say the Beginner Licence). Give the Beginner limited band space within the Novice allocation on 10 metres. Allow them to transmit 12 watts SSB within this segment. Place a time limit for the holding of a Beginner's Licence to one or two years, non-renewable. In this way, the Beginners are on HF with opportunities to work DX and are also able to communicate with all other licence classes, but still with some encouragement for them to upgrade.

Include restricted data transmission facilities for Novices and retain the CW requirement as it stands.

Allow limited licensees to utilise SSB (and possibly data), on the same 10 metre segment as the Beginners.

This permits some interaction between all licence classes, and also gives a simple upgrading system. Holders of the Beginner's licence can study the slightly more difficult Novice theory, and five words-per-minute CW, or they can study the much more difficult theory for the Limited licence with no CW.

I would like to say that I am opposed to the Canadian Proposals.

It is good to see such discussions flowing on such an important issue and I hope these comments may provide further ideas.

Yours sincerely,

Conrad Carterford VK3PHW,  
26 Pyke Street,  
Tatura, Vic. 3616.

#### WANT TO TRADE? ??

I am interested in contacting Australian amateurs who would like to trade keys made in Australia for CW keys made in the USA. The particular keys I am interested in are old, eg WWII and earlier, and hard to locate.

I am a serious collector, motivated out of a fascination and love of the objects — I am not seeking profit.

Thank you.

Warren E Burbit K2JUV,  
2114 Main Road,  
Suffern, NY. 10901. USA.

#### HOW DO YOU GET IT?

Greetings and thank you for the wonderful job you are doing with *Amateur Radio*. It is a publication of which you can be justly proud.

I have a good friend, Ray Fellows VE3BAK, who is the editor of the Radio Society of Ontario's magazine *The Ontario Amateur*. I would very much like to send him copies of our magazine. Can you please advise me as soon as possible the subscription rate for such a delivery?

Could you also please advise the copyright position if he ever wanted to use one of your articles in their magazine.

Yours faithfully,

Ron Churcher VK7RM,  
PO Box 277,  
Devonport, Tas. 7310.

Subscription rates for non-member direct subscriber in Canada are \$428 per annum surface mail or \$470 per annum air mail. You may either pay yourself, or the overseas amateur can be billed. We do not object to occasional reprinting, perhaps two or three items a year, as long as acknowledgment is made of author and source. — Ed.

#### TECHNICAL CORRESPONDENCE

I enjoyed reading John Gazar's article *Aerials and Earths* in May AR, because he managed to avoid too much mathematics and technicalities. Consequently, I understood enough of it to hear an alarm bell ringing when he described how to calculate aerial impedance by measuring SWR. The alarm bell sounded because although he specified 50 ohm cable he did not specify the length to be used in the test.

Unless the coaxial cable is a multiple of a half wavelength in length, the SWR at the rig will not be true reflection of the antenna impedance. In

fact, by using a length other than halfwave multiples it is possible to trim his antenna to 1:1, even if he has to adjust the coaxial length in the process.

I guess John meant to specify a coax length of halfwave multiples.

As a matter of interest I checked the SWR on my three element Yag with the normal coax of random length (that means I have not got round to measuring it yet). I then added a two metre length of coaxial cable and tried again with the results as below.

| Frequency | Normal Coax | 2m Added |
|-----------|-------------|----------|
| 14.005    | 1.75:1      | 1.3:1    |
| 14.100    | 1.32:1      | 1.05:1   |
| 14.150    | 1.20:1      | 1.06:1   |
| 14.200    | 1.20:1      | 1.20:1   |
| 14.250    | 1.10:1      | 1.30:1   |
| 14.300    | 1.06:1      | 1.51:1   |
| 14.345    | 1.30:1      | 1.75:1   |

Makes you think doesn't it

Yours sincerely,

Noel Davies VK7EG,  
30 Spencer Street,  
Burnie, Tas. 7320.

#### FOLLOW-UP PRACTICE

Having been a member of the WIA and holding a call sign for the past three years, I have often read in AR criticism of those new operators as being black box operators only.

I say this is not always the case, but who can blame those who are? For instance, where are the post-theory practical classes for those people after completing the theory and passing the exam? Does the WIA run or encourage such classes or are they content to push for theory and passes only, content then that membership may increase?

I have made many inquiries during the past few months and have found it difficult to find anyone prepared to take up such an assignment.

I am sure there are many amateurs in the fraternity who would be prepared to attend an on-earrill group and pay for the instruction and any materials used. It may even attract new members for the Institute.

What about it WIA — a practical service to members.

Yours faithfully,

P H Gibbs VK3AQ,  
37 Goffwood Close,  
Dingley Village, Vic. 3172.

#### AR AND AMATEUR RADIO

I personally feel that *Amateur Radio* magazines in 1986 have been a little more interesting in comparison to 1985. I think we over-did the anniversary a bit!

As a long time constructor or 'fiddler', I like the technical articles best. It behaves all amateurs to have a go at building some bits of gear. After all, that is what amateur radio is supposed to be about, although modern technology is getting a bit beyond a lot of us.

It is hard to please all of the people, all of the time!

Keep up the good work. It is appreciated and enjoyed by some.

73,

Steve Mahony VK5AJM,  
19 Kentish Road,  
Elizabeth Downs, SA, 5113.

#### ATTRACTING YOUNG PEOPLE

The increasing average age of the amateur fraternity is great. I hope we all go on to 100-plus years. The enticement of the young into amateur radio is another problem. My age - 57-years and I have only held a licence for one year.

There are many arguments for and against being an amateur — equipment cost, if one is to be in the swim, is I feel, rather high for young people entering the hobby. Home-brewing satisfying as it may well be, is not a complete solution to the problem.

I was initially shocked to hear a VK full call telling his friend that he is going to sell his two-metre rig and will then buy a UHF-band CB. Subsequently, I am now convinced on one point — as an amateur on air, I can only talk with other

# SOLAR GEOPHYSICAL SUMMARY — APRIL

amateurs, where-as on UHF CB, I can talk with family or friends. Perhaps, a better arrangement would be to have a common band, say on UHF; where both amateur and non-amateur can operate together. This may well attract young CB operators enlarge their horizons and attempt to become licenced operators.

Please don't talk to me about CB behaviour patterns, which, I have noticed on UHF CB, are better than can be encountered at times on two metres. This better behaviour on UHF is, I feel, caused by the large number of novice operators, by, existing regulations, are forced on to UHF CB.

Yours faithfully,

J R Kemp VK3CAY,  
31 Maddstone Street,  
Altona, Vic. 3018.

## SPIDER QUADS

In 1970, shortly after I designed a "Hub" for Triband Spider Quads, the then editor of *Amateur Radio*, Ken Pinnett, asked me to produce a "rush" article which appeared in the March 1970 issue.

Now, in 1986, I am still, six years after retiring, receiving occasional requests for kits from VKs. Perhaps a short resume will help explain the situation.

Following the publication of the article and advertisements, initially for the "Hubs" only, it became apparent that there was much more interest in complete kits than in bare hubs. So these were offered to the fraternity until about 1977, when Jack Valls VK3PZ, continued for some years.

Jack supplied kits until the early 80s. Hundreds were sold to VK, ZL and a few hubs to the USA and Europe. Towards the end, sales fell-off to about 12 kits per annum, which of necessity had to be built as a 'batch' to obtain reasonable wholesale prices on materials, so he discontinued offering the kits.

Not wishing to become re-involved in the manufacture of these kits I sought, unsuccessfully, someone else to take it on.

Despite the lack of advertising, inquiries continued due to personal recommendations from satisfied users. I am sure there is at present a pent up demand for quad kits and 50 or more could be sold in the first year.

Does someone wish to add a two-element, multi-band, cubical quad to an existing range of antennas, or engage in manufacture as a 'hobby' activity?

If you do not wish to do it myself but I would like to see kits using my hub still on offer to Australia's amateurs.

I have done a quick costing and conclude that the price would be about \$350 for a kit consisting of Hub, Fibreglass Spreaders, 100 metres of 1.8 mm hard-drawn copper wire, Aluminium Females and 50 metres of 45 kg (1.0 mm) mono-film nylon line.

If anyone is interested could they please write to me for further information?

Yours faithfully,

Syd Clark VK3ASC,  
30 Heritage Avenue,  
Frankston, Vic. 3199.

## SATELLITE MONITORING

The Department of Communications has begun a program to monitor the emissions from satellites positioned over Australia and the Indian and Pacific Oceans. The first stage of the project will be installed early in 1987 in the Australian Capital Territory.

The system will check satellite emissions to ensure they are not interfering with both land-based and other space communications. Once the system is installed, Australia could be called on by the International Telecommunications Union to help resolve any disagreements between countries on satellite-to-satellite interference.

The system consists of three earth stations, a spectrum analyser and a supporting computer.

Solar activity was low in April with the exception of 24th when three M Class flares were observed. The flares arose from a new region which grew rapidly in the two days prior. They were observed at 0034-0055 UTC, and at 0340-0403 UTC and again at 0603-0707 UTC. The rapid growth of this region was shown by the sudden rise in the 10 cm flux after the 22nd. The region began to decay after the 25th and the values had dropped back to low levels by the end of the month.

The 10 cm flux readings were:  
1-72; 2-91; 3-71; 4-11-72; 12-73; 13-74;  
14-15; 16-17; 17-75; 18-21; 19-74; 20-73; 21-81;  
24-86; 25-85; 26-84; 27-82; 28-78; 29-76;  
30-74. The average was 75.2, and the sunspot average was 20.4.

The running yearly average was 17.4 for October 1985.

## GEOMAGNETIC

April 10 The geomagnetic field was at active levels for most of the day with brief periods of minor storm conditions. A=15.

April was an extremely quiet month even though the equinox months, such as April, are often more disturbed than average. The low monthly average of 7.3 made it the quietest month since 1980. The average level of magnetic disturbance has been falling over the past four years and is expected to reach a minimum around the time of the solar minimum.

## HISTORICAL LARGE GEOMAGNETIC DISTURBANCES

The geomagnetic disturbance experienced on February 8, this year, was severe by any standard and its effects on communications were quite dramatic. How did the disturbance compare in severity with others in the past?

The following table lists the 20 most disturbed days since 1932, measured by the planetary disturbance index Ap.

| Ranking | Date              | Solar Cycle No | Ap Value |
|---------|-------------------|----------------|----------|
| 1       | November 13, 1980 | 19             | 290      |
| 2       | April 1, 1980     | 19             | 241      |
| 3       | July 15, 1959     | 19             | 236      |
| 4       | September, 1941   | 17             | 230      |
| 5       | July 5, 1941      | 17             | 220      |

## W1AW SCHEDULE for April 27, to October 26, 1986

W1AW code practice and bulletin transmissions are sent on the following schedule. This information may be of interest to the SWLs.

Slow Code Practice MWF 0200, 1300, 2300, TThSSn 2000; M-S 0200 MWF 2000, TTh 0200, 1300, TThSSn 2300, S: 0200.

CW Bulletins Dy 0000, 0300, 2100; MTWThF 1400

Teleprinter Bulletins Dy 0100, 0400, 2200; MTWThF 1500

Voice Bulletins Dy 0130, 0430

All times are in UTC. MTWThFSSn are days of the week. Dy is daily.

Code practice, Qualifying Run and CW bulletin frequencies: 1.818, 3.550, 7.080, 14.070, 21.080, 28.080 MHz.

Teleprinter bulletins frequencies: 3.625, 7.095, 14.095, 21.095, 28.095 MHz.

Voice bulletin frequencies: 1.890, 3.990, 7.290, 14.290, 21.290, 28.590 MHz.

Slow code practice is at: 5, 7.5, 10, 13 and 15 WPM.

Fast code practice is at 35, 30, 25, 20, 15, 10 and 10 WPM.

Code practice texts are from QST, and the source of each practice is given at the beginning of each practice and at the beginning of alternate speeds. For example, "On February 1986 QST, pages 9 and 85" indicates that the main text

|    |                    |    |     |
|----|--------------------|----|-----|
| 6  | Mar 28, 1946       | 18 | 215 |
| 7  | March 1, 1941      | 17 | 203 |
| 8  | October 6, 1960    | 19 | 205 |
| 9  | February 8, 1986   | 21 | 202 |
| 10 | September 22, 1946 | 18 | 200 |
| 11 | July 8, 1958       | 19 | 200 |
| 12 | February 11, 1958  | 19 | 199 |
| 13 | September 6, 1982  | 21 | 199 |
| 14 | March 25, 1946     | 18 | 195 |
| 15 | March 24, 1940     | 17 | 190 |
| 16 | March 30, 1940     | 17 | 190 |
| 17 | October 7, 1960    | 19 | 186 |
| 18 | March 25, 1940     | 17 | 185 |
| 19 | August 5, 1972     | 20 | 182 |
| 20 | March 27, 1959     | 19 | 178 |

## FEATURES

i. Cycle 19 (peak sunspot number of 201 in 1957) made the largest contribution with eight entries. However, Cycle 17 (peak sunspot number of 119 in 1937) contributed six entries in spite of a relatively modest sunspot number.

ii. Most of the disturbances (17 out of 20) occurred after the time of the solar maximum of that cycle.

iii. The equinox months (March-April and September-October) were the worst months with 13 entries.

iv. Even though the November 13, 1980 rates as the single most disturbed day, the period March 24-30, 1940 must rank as the worst week with three entries.

From data supplied by the Department of Science, IPS Radio and Space Services — April 1986



**QSP**

## ODD, BUT TRUE!

Recently, a congregation was listening intently to the minister deliver his sermon.

At one point in the service he asked "Where is the Devil, now?"

Promptly, a voice replied, with a laconic amateur drawl, over the PA-system, "I'm outside the church."

is from the article on page 9 and the mixed number/ratier groups at the end of each speed are from the contest scores on page 85.

On Fridays, UTC, a DX Bulletin replaces the regular bulletin transmissions.

On alternate Saturdays at 2230 UTC, Keplerian Elements for active amateur satellites will be sent on 45.45-Baud Baudot on the regular Teleprinter frequencies. The next data for transmission will be given in regular satellite bulletins.

W1AW CW and voice bulletins are sent on OSCAR-10, Mode B, when the satellite is within range. Look for CW on 145.840 MHz and SSB on 145.982 MHz.

Teleprinter bulletins are 45.45-Baud Baudot, 110-Baud ASCII and 100-Baud AMTOR, FSK mode. Baudot, ASCII and AMTOR (in that order) are sent during all 1500 UTC transmissions, and 2200 UTC on TThFSSn. During other transmission times, AMTOR is sent only as time permits.

CW bulletins are sent at 18 WPM. During communications emergencies, W1AW has special bulletins as follows: voice on the hertz teleprinter at 15 minutes past the hour and CW on the half hour.

W1AW is open for visitors to America from 8 am to 1 pm, Monday through Friday and on Saturday and Sunday from 3.30 pm to 1 am. Visitors are welcome to operate W1AW from 1 to 4 pm Monday through Friday provided they have a copy of their current amateur radio licence.

Condensed from QST April 1986



## TOM ROBBINS VK5AQ

It is with regret that I record the passing, after a prolonged illness, of Tom on May 19, 1986, at the age of 67.

Tom was employed as an Assistant Draughtsman, by the Adelaide Electric Supply Company, (later The Electricity Trust of South Australia), from December 1936. He graduated as an Engineer at the beginning of the war.

During the war, Tom served as an Engineer Lieutenant on the HMAS Parth, which sank in Sunda Strait in 1942. Tom remained a Prisoner of War in Japan for the duration of the war.

He returned to work for ETSA in January 1946 in the Sub-station Department and was later appointed Manager of the Leigh Creek Coal Field, where he served for several years. He was later appointed Regional Manager Upper North at Port Augusta, and remained in that position until his retirement in 1978. He then continued to live at Port Augusta.

Tom obtained his amateur licence in 1935, with the call sign VK5DK, which he held until the declaration of war. After the war he did not renew his licence until 1949, when he was allocated the call VK5AQ. From 1949 he has been active, particularly on 160 metres and more recently in satellite communications. He was well known in the north of South Australia and made many friends in the area.

He had an excellent knowledge of native flora, and was also actively interested in the boy Scouts whilst at Leigh Creek and was a strong supporter of the Legacy movement.

Tom will be greatly missed by his many amateur friends throughout Australia and overseas. He was one of nature's true gentlemen.

Deepest sympathy is extended to his wife, Margaret and his family.

Contributed by John Bulling VK5KX

## DESMOND LEO BUTLER VK1DL

Desmond collapsed suddenly on the evening of April 28, and passed away on May 4, without regaining consciousness. He had enjoyed good health until then and was very active in community affairs and voluntary hospital work in the Canberra area.

Desmond was born in Lamerook, South Australia in 1916, and in June 1935 entered the Royal Australian Navy, Communications Branch. He served on HMAS Canberra (1936), Vampire (1938), Vendetta (1939), Australia (1940), Harman Naval War Station (1943/46), and Shropshire (1946), as part of the Victory Contingent to England.

He left the Navy in 1947 as a Chief Petty Officer Telegraphist and entered the Commonwealth Public Service, Department of External Affairs in the communications area, and retired in 1978. He obtained his ACP in 1977 and operated mobile on a complete around-Australia-trip by land cruiser the same year.

Desmond was a component CW operator and obtained his DXCC only a short time after being licensed. He also participated in several telephony networks and was well-known on the amateur bands.

Deepest sympathy is extended to his wife, Jean, son, Michael and daughter Geraldine. He will be sadly missed by his many friends and colleagues of the amateur fraternity.

Contributed by John Gore VK1PG

## JOHN KELVIN GARDNER VK3NA

"Kelly" passed away on May 21, at his home, Cannons Creek, Victoria. He was 72. He obtained his amateur licence in 1931, whilst studying medicine at Melbourne University and later served with the AIF in the middle East and New Guinea.

# Obituaries

He was a skilled surgeon and practiced his profession for many years with great distinction and compassion.

In latter times, following the death of his wife, he retired to Cannons Creek on Westernport Bay where he could engage in his two favourite pastimes — amateur radio and sailing.

A high-point in his life was when he joined his sister and her husband in the West Indies, last year, and sailed in their 40 foot yacht through the Panama Canal and across the Pacific to Tahiti. His little FT-7 and a few metres of wire hauled to the mast-head gave great delight to his many amateur friends in VK who followed the yacht's progress.

The tragic death of his eldest son David VK3PBJ, a few weeks earlier doubtless hastened his own passing.

Kelvin leaves two sons, John and Rex, and four grandsons, to whom we extend our sympathy.

Contributed by Roll Hallamore VK3AJH

## CLIFF GOLD VK4CG

1925-1986

Cliff was born in Brisbane in 1926 and passed away peacefully on June 2, 1986.

He came on air in 1928 and experimented on the 5, 20, 32, 80, and 250 metre bands using a Hartley circuit with a 12X210 tube. Power was from AC stepped up to 600 volts and rectified through 16 glass jars in bridge form. Grid leak was a jar of water and plate condensers of sheet glass and zinc.

He had QSO's world-wide.

When the Queensland Radio Transmitters League was formed, Cliff became Treasurer, International Contact Station, Vigilance Officer, and member of the QRTL Traffic Branch.

Cliff was a WIA Federal Councillor in 1928.

As mentioned in *Amateur Radio* in October 1982, in a *Thumbnail Sketch*, Cliff was 4GR's announcer and engineer, he was also Uncle Cliff and Willie Evergreen running the children's session. Later, Cliff was Manager and Projectionist of the Empire Theatre, also Toowoomba... from whence he sometimes transmitted sound to his wife Grace, on five metres.

Cliff's old friend of some 50 years, the late Bud W6CG (well-known in AMSAT circles), changed his call sign out of respect for Cliff.

A private cremation service on June 5, was attended by a WIA representative.

Cliff is survived by his wife, Grace, to whom deepest sympathy is extended.

Contributed by Peter Brown VK4PJ

## ARTHUR FORECAST VK3AM

With the death of Arthur on June 5, 1986, another member of our fraternity has become a Silent Key.

Arthur was one of the few amongst us who held a licence for 60 years. 3AM was one of the best known of those radio amateurs broadcasting music during the 1920s on 200 metres. One year, he won a gold cup for the most popular station.

On leaving school during the First World War, he became a cinematograph operator and spent most of his working life at the *Victory Theatre*, Saint Kilda, the *Piazza Theatre*, and more recently at the *Croydon Drive-In*.

In his younger days, he was keen on motor-bike racing and was a lifelong friend of the late Ron Hipwell, a well-known champion at the old *Aspendale Motor Race Track*.

In his latter years, when he lived at The

# Silent Keys

It is with deep regret we record the passing of —

|                        |        |
|------------------------|--------|
| MR DESMOND LEO BUTLER  | VK1DL  |
| MR ARTHUR FORECAST     | VK3AM  |
| MR JOHN KELVIN GARDNER | VK3NA  |
| MR CLIFF GOLD          | VK4CG  |
| MR TOM F ROBBINS       | VK5AQ  |
| MR G J WATTS           | L30222 |

Bealin, Victoria, he became an expert chicken sexer. He was a skilled mechanic, with a fine workshop and was well-known in Australia and overseas for his knowledge and construction of mobile antennas.

For some years he was Technical Storeman at Channel 2 on Mount Dennington.

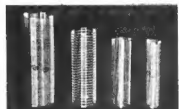
Arthur will be sadly missed from the daily net, which has been operating on 40 and 80 metres for about 25 years. He is only the third of this group who was a Silent Key, the others being Ivor Morgan VK3DH and Gill Miles VK2KI.

He was an early member of the *Radio Amateur Old Timers Club* and will be remembered by his many amateur friends both here and overseas.

Arthur's wife, Vera, died some years ago. Deepest sympathy is extended to his two sons and two daughters.

Contributed by Keith Baltantyne VK3AKB

# AIR-WOUND INDUCTANCES



| No     | Diag   | Turns per inch | Length | Equiv   | B & W  | Price |
|--------|--------|----------------|--------|---------|--------|-------|
| 1-08   | 1/8"   | 8              | 3"     | No 3002 | \$1.60 |       |
| 1-16   | 1/8"   | 16             | 3"     | No 3003 | \$1.60 |       |
| 2-08   | 1/8"   | 8              | 3"     | No 3006 | \$1.90 |       |
| 2-16   | 1/8"   | 16             | 3"     | No 3007 | \$1.90 |       |
| 3-08   | 1/8"   | 8              | 3"     | No 3010 | \$2.30 |       |
| 3-16   | 1/8"   | 16             | 3"     | No 3011 | \$2.30 |       |
| 4-08   | 1"     | 8              | 3"     | No 3014 | \$2.60 |       |
| 4-16   | 1"     | 16             | 3"     | No 3015 | \$2.60 |       |
| 5-08   | 1 1/4" | 8              | 4"     | No 3018 | \$2.90 |       |
| 5-16   | 1 1/4" | 16             | 4"     | No 3019 | \$2.90 |       |
| 8-10   | 2"     | 10             | 4"     | No 3907 | \$4.20 |       |
| 8-10/7 | 2"     | 10             | 7"     | No 3907 | \$7.20 |       |

Take the hard work out of Coil Winding — use "WILLIS" AIR-WOUND INDUCTANCES

**WILLIAM WILLIS & Co. Pty. Ltd.**  
98 Canterbury Road, Canterbury, Vic. 3128  
PHONE: 636 0707

AR86



# QSP

## MOONBOUNCE — 1961

For less than \$100, WITQZ built a parabolic-type reflector for 1296 Mc to get set for moonbounce activity.

From QST, April 1966



## DEADLINE

All copy for inclusion in the October 1986 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by 9am, 21st August 1986.

# Hamads

**PLEASE NOTE:** If you are advertising items **FOR SALE** and **WANTED** please write each on a separate sheet of paper, and include all details: eg Name, Address, Telephone Number, on both sheets. Please write copy for your Hamad as clearly as possible. Please do not use scraps of paper.

- \* Please remember your STD code with telephone numbers
- \* Eight lines free to all WIA members. \$9.00 per 10 words minimum for non-members
- \* Copy in typescript, or block letters — double-spaced to Box 300, Caulfield South, Vic. 3162
- \* Repairs may be charged at full rate
- \* QTH means address is correct as set out in the WIA current Call Book

Ordinary Hamads submitted from members who are prepared to be in the general electronics retail and wholesale distribution trade should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows:  
\$2.50 per four lines, plus \$2.00 per line (or part thereof).

Minimum charge — \$22.50 pre-payable

Copy is required by the Deadline as indicated below the indexes on page 1 of each issue.

## TRADE ADS

**AMIDON FERROMAGNETIC CORES:** Large range for all receiver & transmitting applications. For data & price list send 10x5 220mm SASE to: RJ & US IMPORTS, Box 157, Mortdale, NSW, 2223. (No inquiries at office — 11 Jackson Street, Caringbah). Agencies at: Geoff Wood Electronics, Lane Cove, NSW. Truscott Electronics, Croydon, Vic. Willis Trading Co, Perth, WA. Electronic Components, Fishwick, Tas. ACT.

## WANTED — ACT

**ICOM HF LINEAR AMPLIFIER:** Barry VK1ABR, QTHR. Ph:(062) 85 5652 Home or (062) 72 4331 Work

## WANTED — NSW

**DONATIONS:** of equipment for school radio club appreciated. In particular, a beam or vertical antenna for 3, 21, or 28 MHz is sought. Matthew Ryan VK2PQG, St Francis College, Yanco Avenue, Leeton, NSW, 2705. Ph:(066) 53 3622

**ROTATOR:** prefer heavy duty. VK2GCC, Ph:(062) 68 4561 Work or 97 2853 Home

**TRANSISTOR DIP OSC SWITCHABLE BALUN:** for mobile use. Tio Model CS-1570 30-300 MHz CRD or Eign. Sigs 100 kHz-160 MHz, audio oscillator 10 Hz-20 kHz. 2-tone audio osc for SSB wave-form generation. Frequency counter up to 160 MHz. Laurie VK2AQW, QTHR. Ph:(02) 969 2160.

## WANTED — VIC

**BOOK:** Child Development: An Introduction by Steven R. Yussen & John W. Santrock. L31-482. Ph:(03) 725 9265.

**BOOK:** The History of Radio in South Australia by JF Ross, Varian, Q-270V, 5A or more. Syd Clark VK3ASC, QTHR. Ph:(056) 71 1861.

**CODE TYPE CD-44 ROTATOR:** required as replacement for damaged unit. Either with or without control unit. Details & price to Frank VK3ZZ, QTHR. Ph:(03) 586 4711.

**INFORMATION:** from past & present commercial theatre productions in all states, who are also amateurs. Wanted with a view to an article for AR. All replies answered. VK3AH, QTHR.

## WANTED — QLD

**KENWOOD PS20 or PS30 POWER SUPPLY:** & VFO 120 external VFO in very good condition. Repairs welcome. Please contact Mike VK4VIX, PO Box 471, Redcliffe, Qld. 4020.

**KENWOOD TS-330S:** VK4AK, QTHR. Ph:(07) 369 1706.

**POWER SUPPLY:** 13.8V to suit FT-707. Minimum 15 amps continuous. Must be in good condition. Also Quartz Crystals in 1/2" mount 2-10 MHz & 5.3935 MHz K9-25T, 40 MHz K9-25B, 10 MHz HC-18U. Steve VK4KQ, QTHR. Ph:(077) 43 4506.

## WANTED — WA

**HF BROADBAND DIPOLE:** 12-20 foot wide 3.5-30 MHz. Also want pot 20 kA with switch for stereo tone control. Ken VK5ZA, QTHR. Ph:(08) 396 7829.

## FOR SALE — ACT

**YAESU FRG-7 COMMUNICATIONS RECEIVER:** in good condition. No mods. \$200. Keith VK1ZGV. Ph:(065) 58 2250 AH.

## FOR SALE — NSW

**COMPUTER:** TRS80-CoCo, 64k extended Basic, disk drive, joysticks, DMP105 printer, cables, manuals, original packing. Software: Scripts, FlightSim, DataBase, 5750. Will separate. Norm McMillan, Ph:(044) 22 1473.

**KENWOOD 120V TCVR:** \$350. Kenwood TL120 linear amplifier. 1000. Kenwood SA-220 station monitor, including 100W adaptor. \$300. John Clark VK2MAU. Ph:(052) 520 9008.

**MICROLOG AIR-1:** in perfect condition for Commodore 64. V1c 20 computer. Contains software for reception of RTTY, CW. \$200. Ph:(067) 72 5573.

**SCANNER:** Pro-30 68-88 MHz, 106-136 MHz, 138-174 MHz, 512 MHz. Direct entry keypad, LCD display, all books, etc. Mark Davies VK2VFR, 1 Haynes Avenue, Seven Hills, NSW 2147. Ph:(02) 571 4532 or (02) 774 5055.

**SWAN 350C HF TCVR:** in good condition. Similar to Swan 500, with Swan 230X power supply, mic & manual. \$200. VK2CDB, QTHR. Ph:(02) 543 4137.

**TEKTRONIX 565 DUAL BEAM CRO:** 2 probes & manuals, excellent. \$350. ONO. AURUM-250 RF pig snail gun 10 kHz-50 MHz, excellent. \$100. HP low freq oscillator model 202B. \$50. FM monitor model 600B. \$50. Collins 32F51 SSB unit. & 4 switched frequencies tuned to between 2-15 MHz. 2 x 6145A final. \$100. Elton low type 6104A, 12 pos stat switched. \$25. VK2CCC. Ph:(062) 68 4561 Work or 97 7263 Home.

**TWO-METRE POWER AMPLIFIER RF ASSEMBLIES:** 2 only. Made for 4CX250B valves (2) in parallel. No tubes, power supplies or fans. Quality silver-plated construction with air system sockets. \$60 each. Also 3 valves. 4CX250B believed to be okay. \$10 each & 2 air system sockets to suit 4CX250B. Unused \$20 each. VK2BQX, QTHR. Ph:(02) 559 5506.

**YAESU FT-600R 6m ALL-MODE TCVR:** not 12 months old with very little use. Paid \$300, will sell for \$340. VK2ZBK, QTHR. Ph:(089) 31 1490.

## FOR SALE — VIC

**CONVERTED CB TO 10m BAND:** 28.300-28.900 MHz. SSB/CW with built-in power supply & SWR meter. Also 12V DC leads. Ex cond. 1200. Mobile antenna. Also 1200 and heavy duty type. Operates from 150-5.700 with heavy duty base mount & 2 springs. Used twice, ex cond. \$80 the lot. Mark VK3PUC. Ph:(053) 32 1333.

**KENWOOD 2500, 2m FM TCVR:** complete with hand-book, charger, diagrams. Ex cond. \$300. ONO. Keith VK3AH, QTHR. Ph:(052) 21 3658 AH or weekends.

**OSKAR-BLOCK SWR POWER METER:** as new, very little use. 35-144 MHz coverage. 52 ohm & 75 ohm impedance power range 2W-210W. \$100. ONO. John Atrlin, 13 Brooks Court, Tatura, Vic. 3616.

**QUAD HUS BANDIT:** cast alloy. New \$35. Hicake trapped vertical antenna, VS-41 with accessory kit. 80K & radial kit VS-RG. Exc cond. \$75. Peier VK3APS. Ph:(03) 836 7468.

**SHACK CLEARANCE:** Yaesu FT-107M HF tcvr, matching FC-107 ATU, SP-107 speaker/dummy load & YD-148 desk mic. manuals. \$850. Hy-Gain TR8AUC3 (band beam). \$200. Emoto 502CXX rotator + control unit. \$150. Alagawa PM-3VH HF/VHF SWR + power meter. \$20. Dick Smith Q1200 multi-meter \$30. Hildard gain \$10. Will sell the lot for \$1100. Tim VK3BXR Ph:(03) 723 3943.

**VHF PA TUNING:** QOE0640 (2), QOE03020 (2), + 3 sockets, 1 set anode cones, \$40 the lot. Melairs VY, K4AB, \$5. AD-85 12V, 1mA movement. \$5. AD-48 200uA, \$6. VK3ZXY. Ph:(03) 592 3514.

**YAESU EQUIPMENT:** FT-1012D tcvr. \$650. Antenna Tuner FC-902. \$200. External speaker SP-901. \$50. Dummy load watt meter YP-150. \$100. Desk mic YD-84AA. \$50. A4 items including manuals in immaculate condition. Wal L31285. Ph:(02) 29 4314.

**YAESU FT-200 TCVR & MATCHING POWER SUPPLY:** 90-10 metres, SSB & CW including desk mic AD484, manual. Little used, still in mint condition. Ideal second rig or novice. \$275. B Bathole VK3UV, QTHR. Ph:(03) 580 6424.

**YAESU FT-757QX TCVR:** Yaesu FT-757QX switching power supply, Yaesu FC-7AT automatic antenna tuner & headphones. Used once only. \$1200. Colin. Ph:(03) 563 1277 BH.

## FOR SALE — QLD

**KENWOOD TS-130SE HF TCVR:** WARC bands, optional fan, mint condition \$650. Kenwood VT-400DA 2m/7m duoband FM 25W, excellent unit, little use, in mint condition. \$700. Yaesu FT-230R 2m 25W FM tcvr. VGC \$300. VK4BZB. Ph:(07) 345 8731 AH.

## FOR SALE — SA

**BACK COPIES EA R, TV & H:** 1950s to 1970s. Fair condition. Best offer. AR7 & x with coil boxes, AC power supply. Best offer. VK5GQH, QTHR. Ph:(08) 298 0513.

**FT-191B & ACC:** DC-DC converter, RTTY filter, hand-book (FT101E), AM/SSB/CW, 300W input, Olexarok per SWR meter. Dummy load — 300W. IC-2E 2m hand-held — hand-book, external mic, charger & spare battery pack. All ex cond. All others considered. Simon VK5BSM, QTHR. Ph:(08) 269 1213.

**IC-701, PS, MANUAL & MIC:** IC-702A, charger & spare battery. Tono Theta 7000 (rec & xmit RTTY, CW, ASCII). All going well. Other wanted on any Kenwood VK5BN, QTHR. Ph:(085) 55 2998.

## FOR SALE — TAS

**YAESU FL-2100G LINEAR AMPLIFIER:** in mint condition. New valves fitted & have not been used. Cost \$800 new, will sell for \$600 plus freight. Warren Cane VK7CV, QTHR. Ph:(002) 44 1268.

# Advertisers Index

|   |         |
|---|---------|
| ANDREWS COMMUNICATIONS SYSTEMS .....        | 5       |
| ATTN ANTENNAS .....                         | 24      |
| AUSTRALIAN ELECTRONICS MONTHLY .....        | 24      |
| CAB ELECTRONIC SERVICES .....               | 29      |
| DICK SMITH ELECTRONICS .....                | 29      |
| ELECTRONIC BROKERS AUSTRALASIA .....        | 29      |
| ELECTRONICS TODAY INTERNATIONAL .....       | 4 & 29  |
| EMTRONICS .....                             | 32 & 33 |
| GFS ELECTRONIC IMPORTS .....                | 57      |
| IAM J TRUSCOTT'S ELECTRONIC WORLD .....     | 8C      |
| ICOM AUSTRALIA PTY LTD .....                | 10      |
| KENWOOD ELECTRONICS AUSTRALIA PTY LTD ..... | 10      |
| WECAM .....                                 | 4       |
| WIA MAGPUBS .....                           | 4       |
| WIA (NSW DIVISION) NOVICE LICENCE .....     | 4       |
| WILLIAM WILLIS & CO PTY LTD .....           | 63      |

# KENWOOD

pacesetter in Amateur radio

**\$495**



**TM 201B TM 401B**

**TS 811A**



**\$1335**

**TS 440S  
\$1585**



**TS 940S**

**\$2950**



**TM 2550A**

**\$650**



**Kenwood is always a winner!**



**TR 751A**

**\$750**

**TS 670**

**\$965**



**\$695**

**TM 2570A**

**TS 711A**

**\$1290**



**TH 21A**

**\$320**

**TH 41A**



## KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.

4E WOODCOCK PLACE, LANE COVE, SYDNEY, N.S.W. 2066. Ph. (02) 428 1455.

Further, beware of dealers not listed in this advertisement who are selling Kenwood communications equipment. All Kenwood products offered by them are not supplied by Kenwood Electronics Australia Pty Ltd. and hence no guarantee applicable.

### YOUR DEALER BELOW WILL GUARANTEE SATISFACTION

N.S.W.

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD. - 4E WOODCOCK PLACE, LANE COVE (02) 428 1455

ELIMONICS - 54 WENTWORTH AVENUE, SYDNEY (02) 311 8986

HASSIS ELECTRICAL - 71 SUMNER STREET, ORANGE (06) 52 6249

REG STOCKMAN COMMUNICATIONS - Cnr BAYWOOD BURN ROAD & SHIRLEY STREET, INVERELL (067) 22 1303

NORMALD COMMUNICATIONS - 51 DENISON STREET, HAMILTON, NEWCASTLE (049) 69 1999

MACLELL PTY. LTD. - 89 KENNY STREET, WOLLONGONG (042) 79 1455

E & K COMMUNICATIONS - 14 DUTTON STREET, DICKSON, A.C.T. (062) 49 6437

DX ENGINEERING - 5 JASMINE STREET, PORT MACQUARIE (065) 82 0475

NORTHERN COMMUNICATIONS - 149 MARCUS STREET, BARNWORTH (067) 66 6935

FRANK BOUNDY - LISMORE (066) 88 2145

VIC.

INTERSTATE

EASTERN COMMUNICATIONS - 168 ELGAR ROAD, BOX HILL (03) 289 3107

PARAMETERS PTY. LTD. - 1064 CENTRE ROAD, SOUTH GALLERY (03) 575 0222

ELECTRONICS - SHEPP 5, 788 294 QUEEN STREET, MELBOURNE (03) 67 8131

BRIAN SHARLES - 11 MALMSBURY STREET, BALLARAT (036) 39 2808

SUMNER ELECTRONICS - 78 KING STREET, BENDIGO (034) 43 1977

HOBBY ELECTRONICS - 477 NELSON ROAD, MT NELSON (032) 23 6751

WATSONS WARELESS - 72 BRISBANE STREET, HOBART (002) 34 4303

ADVANCED ELECTRONICS - 5A THE QUADRANT, LAUNCESTON (003) 31 7075

MARINE & COMMUNICATION - 19 CHARLES STREET, LAUNCESTON (003) 31 2711

V.V. ELECTRONICS - 214 MOUNT STREET, BURBANE (064) 31 7733

MITCHELL RADIO CO. - 59 ALBION ROAD, ALBION (07) 57 6430

INTERNATIONAL COMMUNICATIONS SYSTEMS PTY. LTD. - 8 RILEY STREET, PORT ADELAIDE (08) 47 3688

ARENA COMMUNICATIONS SERVICES - 642 ALBANY HIGHWAY, EAST VICTORIA PARK (08) 361 5422

TRE SALES - Cnr NEWCASTLE & CHARLES STREETS, PERTH (08) 328 4180

WILKS ELECTRONICS - 865 ALBANY HIGHWAY, VICTORIA PARK (08) 470 1118

BAY RADIO - 72 GUNN STREET, FERNVILLE (08) 453 3561

FORD ELECTRONICS - 209 HANCOCK STREET, DOUBLE VIEW (09) 446 4745

TAS.

QLD.

S.A. & N.T.

W.A.

# AIMING HIGH WITH COMMUNICATIONS ACCESSORIES FROM GFS

## WAY OUT FRONT IN AIRBAND PORTABLES THE NEW ATC-720X

- BALLOONISTS
- AERO CLUBS
- HOME BUILTS
- EMERGENCY COMMS
- RESCUE OPS
- ULTRA LIGHTS
- AIRPORT SECURITY
- HANG GLIDERS
- AIR SHOW COMMS
- EXPERIMENTAL



**920 CHANNEL NAV COM — PLUS 4 MEMORY SCAN PORTABLE TRANSCIVER**

The new ATC-720X provides inexpensive airband communications for a wide range of applications. Its most important includes promoting the peace of mind which comes from knowing you have an emergency back-transceiver with you. It is supplied complete with rubber antenna, alkaline batteries and carrying strap.

**\$990 + S.T. + \$16 P&P \$1134 Inc S.T.**

## AR-2002 Continuous Coverage 25-550, 800-1300 MHz Scanner



If you want continuous coverage, AM/FM wide & narrow with 20 memories we suggest you choose the AR-2002 from GFS.

**\$899 + \$18 P&P**

## LOW LOSS FOAM DOUBLE SHIELDED COAXIAL CABLE

### LOSS IN DB/30 METRES

| TYPE    | 100 MHz | 200 MHz | 400 MHz | 900 MHz |
|---------|---------|---------|---------|---------|
| 5D-FB   | 1.86    | 2.70    | 3.90    | 6.00    |
| 8D-FB   | 1.20    | 1.74    | 2.58    | 3.90    |
| 10D-FB  | 0.99    | 1.44    | 2.10    | 3.30    |
| 12D-FB  | 0.84    | 1.23    | 1.80    | 2.79    |
| RG-8/AU | 2.20    | 3.20    | 4.70    | 8.00    |
| LDF-450 | 0.75    | 1.40    | 1.80    | 2.50    |

## FB SERIES CABLE & N CONNECTORS

| CABLE                  | N-CONNECTORS              |
|------------------------|---------------------------|
| 5D-FB ..... \$3.80     | NP-5DFB ..... \$20.00 ea  |
| 8D-FB ..... \$7.20/m   | NP-8DFB ..... \$27.00 ea  |
| 10D-FB ..... \$9.50/m  | NP-10DFB ..... \$37.00 ea |
| 12D-FB ..... \$13.00/m | NP-12DFB ..... \$33.00 ea |

## HF-VHF SWR-POWER METER

**HS-260**



Compact, two power ranges, 0-12 Watts & 0-120 Watts, switchable HF-VHF with lighted meter. **\$126 plus \$10 P&P**

## NEW HS-VK5 5 BAND HF VERTICAL

Fully self supporting & complete with self supporting loaded radials. 80, 40, 20, 15, & 10 metres. **\$449 and \$18 P&P**

## NEW BROADBAND OMNIDIRECTIONAL ANTENNA 25 TO 1300 MHZ

The new D-130 is one of the latest generation full coverage HF-VHF-UHF omnidirectional antennas. It provides continuous operation from 25 to 1300 MHz and is ideally suited to the laws of the AR-2002 or the ICOM ICR-7000 scanning receivers. Also capable of transmitting on 6m, 2m, 70cm, 33cm & 23cm bands supply.

**PRICE \$289 D-130 \$18 P&P**

## QUALITY CERAMIC EGG INSULATORS NOW AVAILABLE AT GFS

Search no more for those hard to get ceramic egg insulators. GFS have now secured a reliable overseas service. **CATE-EG \$1.90 ea. or \$16 for 10. Plus \$6 P&P**

## SCAN THE BANDS WITH OUR MICROCOMM SX-155

**PROGRAMMABLE POCKET SCANNER**

This new pocket scanner provides coverage of 26-32, 66-88, 136-176 and 380-518 MHz with a sensitivity of less than 0.5 uV. Four banks of 40 memory channels, total of 160 memories. High scan speed of 16 CH/SEC. Auto search and store mode. Priority channel, 4 hour life on supplied NiCad batteries. 24 hour clock. Selectable Scan/Search delay off 1 or 2 seconds. Includes: Mic, a/c charger, carrying case and antenna.



**\$649 + \$18 P&P**

## ANTENNA MATCHER FOR CONTINUOUS HF COVERAGE-MFJ-941D

Apart from being extremely versatile, the MFJ-941D includes a 6-position coax-switch, SWR power meter, 4:1 Balun and will feed balanced line, single wire and coaxial antennas.

**\$431 + \$18 P&P**



## 2 KW DUMMY LOAD

**MFJ-250** Low SWR to 400 MHz, 2 KW PEP, supplied with transformer oil.

**\$172 + \$18 P&P**

## EXPANDED RANGE OF HF-VHF-UHF ANTENNAS

### BROADBAND ANTENNAS

**LOG SP**  
LOG SP — 85 to 520 MHz  
**\$255 + \$18 P&P**  
LOG S 100 to 520 MHz  
**\$177 + \$18 P&P**

### HF BROADBAND DIPOLES

New T2 FD series provides continuous HF coverage  
**200 WATT MODELS**  
3.5-30 T2 FD-200 is 25m long, 3.5-30 MHz  
1.8-30 T2 FD-200 is 30m long, 1.8-30 MHz, both priced at \$208 + \$18 p&P

**2KW MODELS**  
3.5-30 T2 FD-2KW is 40m long, 3.5-30 MHz  
1.8-30 T2 FD-2KW is 50m long, 1.8-30 MHz, both priced at \$268 + \$18 p&P

**N-NOISE BRUSH WITH BUILT IN EXPANDER**

**MFJ-202B**  
These individually calibrated noise diodes need both induction & capacitive reactance to present a much wider impedance than others. Single input and output for 100 MHz.  
**\$258 + \$18 P&P**

**MFJ-1224**

Variable RTTY/CW modem, interfaces with a computer and is supplied with software for VIC-20 or Commodore-64.  
**\$431 + \$18 P&P**

**NOW AVAILABLE ELECTROPHONE 27 & UHF, CB**

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

**REPAIR SERVICE**  
Fast, reliable, guaranteed service for all your amateur, CB and commercial radio equipment.

AUSTRALIAN DISTRIBUTOR

**GFS ELECTRONIC IMPORTS**

Division of Deribar Pty. Ltd.

17 McKeon Road, Mitcham, Vic. 3132

PO Box 97, Mitcham, Vic. 3132

Telex: AA 38053 GFS

Phone: (03) 873 3777 3 Lines

